HUMANITARIAN RELIEF CAPABILITIES IN THE HORN OF AFRICA

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The United States is widely known as one of the largest humanitarian relief-providing countries in the world. Djibouti, a country in the Horn of Africa (HOA), is currently established as one of the key logistics ports on the east coast of Africa. Since 2008, United States Africa Command (AFRICOM) has conducted various operations within Africa in an effort to strengthen international relations. At any point and time, AFRICOM may be required to conduct humanitarian relief operations to help restore and stabilize various countries within Africa. In order to accomplish this mission, AFRICOM must assess the capabilities within the area of Africa that require various humanitarian assistance. This thesis will review the infrastructure capabilities and assessment processes necessary to leverage the host nation's airports, seaports, roads, and railways. It will also examine the various natural disasters that can hinder humanitarian relief operations, to include an analysis of how those disasters attribute to food insecurity and famine in the HOA. The United States must explore ways to leverage host nation infrastructure during humanitarian operations in order to minimize fiscal spending.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

HUMANITARIAN RELIEF CAPABILITIES IN THE HORN OF AFRICA, by Major Damian E. Douglas, USA, 80 pages.

The United States is widely known as one of the largest humanitarian relief-providing countries in the world. Djibouti, a country in the Horn of Africa (HOA), is currently established as one of the key logistics ports on the east coast of Africa. Since 2008, United States Africa Command (AFRICOM) has conducted various operations within Africa in an effort to strengthen international relations. At any point and time, AFRICOM may be required to conduct humanitarian relief operations to help restore and stabilize various countries within Africa. In order to accomplish this mission, AFRICOM must assess the capabilities within the area of Africa that require various humanitarian assistance. This thesis will review the infrastructure capabilities and assessment processes necessary to leverage the host nation's airports, seaports, roads, and railways. It will also examine the various natural disasters that can hinder humanitarian relief operations, to include an analysis of how those disasters attribute to food insecurity and famine in the HOA. The United States must explore ways to leverage host nation infrastructure during humanitarian operations in order to minimize fiscal spending.

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ACRONYMS

AFRICOM	United States Africa Command
ALN	Adaptive Logistics Network
AU	African Union
DoD	Department of Defense
ELIST	Enhanced Logistics Intratheater Support Tool
HOA	Horn of Africa
IPC	Integrated Food Security Phase Classification
NGO	Nongovernmental Organization
USAID	United States Agency for International Development

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CHAPTER 1

INTRODUCTION

Background

The United States remains the largest bilateral provider of humanitarian assistance to the Horn of Africa (HOA), supplying more than $1.8 billion to help those in need since 2011 (USAID 2013a). The United States has conducted numerous humanitarian relief operations throughout the years in various countries. Most of these efforts are initially conducted by military forces and then transferred to nongovernmental organizations (NGOs) for further stability and ongoing recovery operations. Through the Office of U.S. Foreign Disaster Assistance, USAID provides humanitarian assistance in response to international disasters. USAID continually monitors global hazards, identifies potential areas of need, and stands ready to respond whenever disaster strikes (USAID 2013b). The U.S. government assesses its support to various countries utilizing these criteria: severity of disaster overwhelms local response capacity, host nation asks or is willing to accept assistance, and the response is in U.S. interests (USAID 2013a).

Based on these evaluations, the U.S. government conducts foreign humanitarian assistance to the region as an initial relief effort and then transitions to nation assistance for long-term stability operations. However, some nations tend not to utilize their own assets (if available) to help with ongoing efforts, forcing the U.S. government to utilize the majority of its humanitarian relief resources to provide assistance, which can be very costly.

The HOA is located in the easternmost portion of the African continent, on the southern side of the Gulf of Aden. The area consists of the countries of Djibouti, Eritrea,

Ethiopia, Kenya, and Somalia (U.S. Department of State 2013). Since activation of the United States Africa Command (AFRICOM) on 1 October 2008, the HOA was the desired location to help mitigate the increasing threat of Al-Qaeda within Eastern Africa, the piracy actions that took place off the coast of Somalia, and other militia-type threats in that area. The purpose of AFRICOM is to support U.S. foreign policy and national security objectives and create, sustain, and support opportunities to assist America's African partners in their efforts to build enduring security capacity to prevent or mitigate the catastrophic effects and costs associated with instability, conflict, transnational threats, and humanitarian disasters (Kubica 2010, 1). Although the HOA logistical infrastructure was somewhat weak during the mid- to late 2000s, the U.S. government invested millions of dollars to improve equipment to modify the landscape. This was done to enable a better distribution of logistical supplies throughout the region. This thesis will examine the infrastructure capabilities within the HOA (airports, seaports, roads, railways) that the U.S. government could leverage in the event that humanitarian relief operations are required. By looking at these four key and essential relief effort platforms, this thesis will consider the fiscal and logistical constraints that may occur in the overall planning process.

In the HOA, there are numerous challenges that can hinder overall relief efforts. Airports as aviation avenues of support and resupply are limited. This poses a significant problem because U.S. relief efforts predominantly rely on this method. HOA seaports are a valuable vantage point from which to initially receive and distribute humanitarian aid to the region with little or no difficulty. However, with the unpredictability of the African militia in that part of the continent, the security of the overall relief efforts could be at

risk. The roads in the HOA have been known to be significantly substandard for military supply distribution. U.S. government relief efforts normally involve utilizing its own equipment. Typically, the equipment is designed to be driven on improved roadways. In the HOA, this will present a significant challenge for distributing supplies by ground. Railroads are commonly utilized to help supplement air and ground vehicle distribution of supplies. In the HOA, this method of distribution is scarce and, at times, is utilized only for the movement of key and essential natural resources (coal, oil, fuel). Throughout this thesis there will be informational comparison with AFRICOM and the steps that they have taken to ease the logistical burden of supporting key and essential elements in the HOA. The AFRICOM J4 has implemented the Adaptive Logistics Network (ALN) to assist with planning and executing logistical distribution. The success of this system is critical for current and future humanitarian assistance planning as the United States moves forward in a fiscally constrained government.

Research Questions

This thesis will address the following primary research question: Is it possible to leverage the HOA's infrastructure and resources for humanitarian relief operations? The secondary questions that will be examined are:

1. In what other ways can the United States supplement the HOA during humanitarian relief operations?
2. Are countries in the HOA capable of self-resupply? If so, how will this reduce the financial burden for the U.S. government?
3. How will famine affect the ability to leverage the HOA's infrastructure when conducting humanitarian relief operations?

Definitions

Adaptive Logistics Network. The process of creating accessible information on the previous dynamics of a specific region and utilizing it to forecast logistical support (Ulmer 2009, 29).

Airport simulation tool. An automated tool utilized to plan airport construction or modification to meet a specific mission requirement (Ulmer 2009, 4).

Enhanced Logistics Intratheater Support Tool. A simulation system that can evaluate the feasibility of transporting logistics by road, rail, inland waterway, pipeline, or aircraft (Ulmer 2009, 4).

Foreign humanitarian assistance. Operations conducted outside the United States and its territories to relieve or reduce critical endemic conditions on a limited basis (Department of Defense 2009, I-1).

Horn of Africa. A peninsula located in the northeast portion of Africa, along the southern side of the Gulf of Aden, containing the countries of Djibouti, Ethiopia, Eritrea, and Somalia (U.S. Department of State 2013).

Nation assistance. Civil and/or military aid rendered to a nation solely based on mutual agreement between the United State and the host nation (Department of Defense 2009, I-8).

Nongovernmental Organization. A private, self-governing, nonprofit organization dedicated to alleviating human suffering; promoting education, health care, economic development, environmental protection, human rights, and conflict resolution; and/or encouraging the establishment of democratic institutions and civil society (Department of Defense 2009, II-16).

Office of U.S. Foreign Disaster Assistance. An organizational unit within the United States Agency for International Development that is charged by the President of the United States with directing and coordinating international U.S. government disaster assistance (USAID 2013c).

United States Africa Command. A Combatant Command headquarted at Kelley Barracks, Stuttgart, Germany; responsible for U.S. military operations for fifty-three African nations, excluding Egypt (AFRICOM 2013).

Assumptions

The assumption for conducting long-term humanitarian relief in the HOA is that its countries lack the proper resources to do so on an ongoing basis. There is an even stronger assumption that they cannot provide for their basic essential services, such as clean water for consumption, electricity, and food supplies. A humanitarian relief operation requires substantial logistical assets and capabilities that the region's countries do not have. The weather within that part of Africa is assumed to be some of the worst in the world. The unpredictable rainy season has a tendency to ruin the road networks and impact aviation visibility for rotary wing assets.

Limitations

A limitation that this study has is considered to be pivotal to the overall recommendations. Because the budget constraints imposed by the U.S. government are just now being fully implemented, it is unknown how these reductions will hinder the current situation of logistics in the region. The other limiting factor in this thesis is the inability to retrieve historical data from AFRICOM's logistical planning tools, the ALN

and the ELIST (Enhanced Logistics Intratheater Support Tool), in a timely manner. Because most of the ALN and the ELIST data are classified, this could significantly change the overall outcome of the recommendations.

Delimitations

For this thesis, there are a few delimitations that will not be done. There will not be any interviews conducted. For the nature of this thesis, interviews are not required from individuals connected to the HOA or AFRICOM to make good recommendations. The predominate source of information will come from online articles, not published books, in order to capture the most current information. For this study, there will not be a full study of the ALN or the ELIST system due to the sensitive information that they contain.

Significance of Study

This study is significant because it will take a deeper look at the other alternatives available to efficiently support the HOA in the event that humanitarian operations need to be conducted. This thesis will contribute to the analysis of utilizing previous or current infrastructure capabilities within the area to accomplish the mission at hand. By doing so, this will alleviate the fiscal and logistical constraints that would normally be fully burdened by the U.S. government during humanitarian operations. As the U.S. government becomes more fiscally constrained in the future, this thesis will provide help by exploring feasible options for supporting the HOA region as humanitarian assistance events evolve.

Conclusion

The next chapter will discuss the reviewed literature for this topic and compare it to the problem to provide an accurate recommendation of whether the United States can leverage more assets from the host nation to improve the situation. It will be followed by an explanation of the methodology for the study, with subsequent chapters examining each issue in detail.

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter will examine the literature pertaining to the current HOA infrastructure that enhances humanitarian relief efforts utilized by AFRICOM and/or the Joint Interagency partners. The literature to be reviewed will be concentrated on the four key areas of infrastructure capabilities as mentioned in chapter 1: (1) the fiscal constraints of not leveraging the infrastructure capabilities, (2) the security that could disrupt humanitarian relief operations, (3) the available organizations within Africa that could be leveraged, and (4) the implementation of the ALN to assist with the planning of logistics and distribution by the AFRICOM J4.

Airports and Airlift

The availability of airports, or areas where airlift capabilities are prominent, provides a key avenue of approach when it comes to distributing humanitarian relief supplies. This type of infrastructure offers a vital platform to effectively assist the host nation in overcoming the current crisis they may be experiencing. Airfields allow for the rapid delivery of equipment, aid, and personnel during times of humanitarian crises (Buchanan 2008, 11). In Africa, the limited transportation infrastructure requires that airlift capacity be present to augment ground and sea transport in order to respond effectively to crisis and conflict situations (Krulick 2011, 2). Krulick goes on to state the importance of utilizing airlift capabilities in Africa during humanitarian operations as one of the many key infrastructure capabilities to leverage during this type of operation. He

also notes that "integration of responsive airlift operations with ground and sea transportation options will enable sustained access to areas of contention while providing sustainment to humanitarian and peacekeeping forces" (Krulick 2011, 11).

The austerity of Africa continues to pose a very unique challenge to AFRICOM and other Joint Interagency organizations that look to sustain humanitarian relief operations. There are thirteen airports in Djibouti, of which only three have permanent surface runways (Central Intelligence Agency 2014a). Camp Lemonnier, the only U.S. military base in Africa, is located in Djibouti. The camp is in close proximity to Djibouti's only international airport, Ambouli Airport, which is located approximately seven kilometers from the Port of Djibouti. The airport affords suitable runway lengths for C-5, C-130, C-17, KC-10, and KC-135 aircraft. Runway conditions are reported to be adequate, with precautionary guidance to C-5 and C-17 taxing and parking restricted on two of the ramps (Talley 2003, 39). Djibouti's Chabelley Airfield, located six miles southwest of Djibouti City, is capable of accommodating military operations with additional modification. Chabelley runways are suitable for C-130 and C-17 aircraft, but unsuitable for C-141B, C-5, KC-10, and KC-135 aircraft due to runway width and narrow taxiways that inhibit turnaround capability. In addition, Chabelley is not equipped for night operations (Talley 2003, 39). The United States and AFRICOM identified these key nodes of air infrastructure within the HOA and decided that it would be the logistical hub for all operations to be conducted in Africa, to include humanitarian support.

The country with the most airports in the HOA is Kenya, with 197 airports, of which sixteen have permanent surface runways (Central Intelligence Agency 2014d). Somalia has sixty-one airports, of which six have permanent surface runways (Central

Intelligence Agency 2014e). Ethiopia has fifty-seven airports, of which seventeen have permanent surface runways (Central Intelligence Agency 2014c).

The country with the same number of airports as Djibouti is Eritrea. Of its thirteen airports, four have permanent surfaces and only two are capable of facilitating C-5, C-130, C-17, KC-10, and KC-135 aircraft (Central Intelligence Agency 2014b). With this type of capability, Eritrea could serve as another valuable avenue to receive initial and ongoing supplies and personnel during humanitarian operations within the region. The airports that are not currently paved or suitable for airlift operations can still be utilized for rotary wing assets if that capability is deemed necessary during humanitarian operations.

African airlines suffer from operational costs compared to their counterparts worldwide, including other developing regions. To make up for the lack of proper maintenance facilities locally, various African countries may charge a tariff to offset additional expenses incurred while conducting operations (Jerome 1999, 32). This tariff helps to stimulate the country's economy and provides jobs to some of the locals within the vicinity of the operating airport.

Seaports

Within the HOA, Djibouti is not only a vital node for air capabilities, but it also offers a viable area for maritime operations. Maritime transport is extremely important to African countries due to the nature of its operations and the high proportion of traded goods transported by sea (Jerome 1999, 33). The Port of Djibouti is located west of the Gulf of Aden and south of the entrance to the Red Sea in east Africa. The port has twelve berths and a container terminal. It is modernized and serves as a transit hub for the region

and as an international transshipment and refueling center (Talley 2003, 36). The port is capable of accommodating large, medium-speed, roll-on, and roll-off ships at maximum draft. It is also fast sealift support capable, but not at maximum draft (twelve meters). The port has adequate connection to local roads linking to major highways (Talley 2003, 37). The proximity of the port and the connection to major roads offers a pivotal mode of transition in order to provide critical humanitarian relief efforts without any significant logistical setbacks. AFRICOM and the Joint Interagency community would be able to utilize the port without any major issues. Somalia has two ports, one in Berbera and one in Kismaayo; the port in Kismaayo can handle cargo only (Central Intelligence Agency 2014e). Eritrea has four ports: two can be utilized for cargo, one is capable of receiving fuel from a fuel tanker or bunker, and one can facilitate roll-on and roll-off operations (Central Intelligence Agency 2014b). These capabilities are important because Eritrea is located in close proximity to Djibouti and next to the Gulf of Aden. Kenya has five ports that are located within Kisumu and Mombasa (Central Intelligence Agency 2014d). The port of Mombasa is known as a robust port for the HOA due to its proximity to nearby waterways. Ethiopia does not have any ports; therefore, it utilizes the ports in Djibouti and Somalia to receive its goods via sea (Central Intelligence Agency 2014c).

Leveraging these types of infrastructure will reduce the costs to fly logistical supplies around Africa in support of humanitarian relief. It will also reduce the other logistical and security strains that normally coexist when conducting this type of operation (fuel, water, food, airfield security). Working together with U.S. Department of Defense (DoD) partners to develop better contracts covering East Africa, along with seamless connections to sealift, will take pressure off of aviation resources, save defense

dollars, and support local economies (Corrick 2012, 1). To help boost their economies, the countries in the HOA charge ocean freight tariffs in an effort to pay for seaport operations.

Roads

In Africa, road transport is the most widely used means of transportation. The fragmentary nature of the railway system and the limitations imposed on the scope of inland water transport by geographical factors are such that the transport of people and goods by rail and inland waterways must be supplemented, usually by road transport over long distances (Jerome 1999, 26). However, an accurate assessment of the road infrastructure is critical. A road may be a five-foot-wide strip of mud just inches above the water line that can accommodate only scooters and livestock, or it can be an eight-lane highway pocketed with bomb craters (Rodman 2004, 11). Despite its rising strategic importance, the African transportation infrastructure has not kept pace with Africa's growth. While 90 percent of Africa's inter-urban transport is achieved via road, only one-third of its 1.2 million-mile road network is paved, and it is often not well maintained (Ulmer 2009, 1). This lack of maintenance could cause significant problems for humanitarian relief efforts in other countries within Africa.

In 2002, Djibouti had 3,067 kilometers of roads, but only 412 kilometers were paved; the remaining roads were comprised of gravel or dirt. Major roads outside the capital were paved but lacked guardrails in some areas, and railroad crossings were not clearly marked (Talley 2003, 34-5). As of 2014, Djibouti has 1,226 kilometers of paved roads (Central Intelligence Agency 2014a). This type of infrastructure improvement (about 300 percent) shows that Djibouti is becoming more capable of enhancing its

infrastructure for future movement requirements. In Kenya, the largest road network in the HOA, there are 160,878 kilometers of roads, of which 11,189 are paved (Central Intelligence Agency 2014d). Somalia has 22,100 kilometers of roads, of which 2,608 are paved (Central Intelligence Agency 2014e). Ethiopia has 44,359 kilometers of roads, of which 6,064 are paved (Central Intelligence Agency 2014c). Eritrea has the smallest road network at 4,010 kilometers, of which only 874 are paved (Central Intelligence Agency 2014b). Such a large amount of unpaved roads could pose a significant problem during humanitarian operations if there is inclement weather. However, because they are already identified, the roadways may possibly be assessed for future improvements by the host nation in order to provide a better method to distribute humanitarian goods when needed.

Heavy transit trade traffic to Ethiopia requires increased maintenance and rehabilitation outlays for the main transit road and the port; thus, expanded financial resources for these purposes must be identified. In August 1999, the government implemented a road user charge equivalent to one U.S. dollar per ton of cargo payable by all trucks (registered locally and abroad) upon exit from the port in order to provide resources for a road maintenance fund. These resources are committed on a priority basis to fully repair the main road link to Ethiopia (Talley 2003, 26).

Corrick (2012) discusses a merger of two key infrastructure capabilities—sea and roads—in his article "The New Spice Route for Africa":

> Commercial trucking has been used sporadically over the years by the Department of Defense (DoD) in East Africa without a comprehensive plan.
>
> The New Spice Route team, which includes the Combined Joint Task Force–Horn of Africa (CJTF–HOA), U.S. Africa Command (AFRICOM), U.S. Army Africa (USARAF), U.S. Naval Forces Africa, and the Military Surface Deployment and Distribution Command (SDDC), seeks to change that. Led by

> the CJTF–HOA J–4, the New Spice Route team matches all DoD shippers with the right commercially contracted capability through the expertise of USARAF.

Unlike the previous Spice Route that emphasized only dedicated road networks, this route highlights both roads and sea solutions (Corrick 2012). For example, the movement of cargo from Manda Bay, Kenya, to Mombasa, Kenya, by truck, then to Djibouti by sea (instead of air), saved the government $380,000 in February 2011 (see figure 1). The sealift portion from Mombasa to Djibouti mirrors one of the original legs of the Spice Route (Corrick 2012). With the utilization of the new Spice Route, it also builds equity and economies of scale, especially when all DoD branches are using the same route (Corrick 2012). This type of joint effort and flexibility shows that there is a strong possibility that this distribution method could be expanded and sustained in Africa.

Rail

Railways in Africa are fragmented and can hardly be described as a system as they run from the interior to seaports, a reflection of their antecedent as a transport system designed for external trade purposes (Jerome 1999, 29). The network is connected only in eastern and southern Africa (Ulmer 2009, 18). Within the HOA, Kenya has the largest amount of rail available, with 2,066 kilometers of track (Central Intelligence Agency 2014d), but it is mainly utilized within Kenya and does not frequently cross the borders of other countries in the region. Somalia has no established rail network (Central Intelligence Agency 2014e), and Eritrea has 306 kilometers of rail (Central Intelligence Agency, 2014b). Although Djibouti has a very limited amount of railway, Ethiopia has an additional 681 kilometers of track that it shares with Djibouti (Central Intelligence

Agency 2014c). Djibouti utilizes approximately 100 kilometers of this one-meter gauge track for a total of 781 kilometers of track.

Figure 1. The New Spice Route for Africa

Source: David L. Corrick, "The New Spice Route for Africa," *Army Sustainment* 44, no. 2 (March–April 2012), http://www.almc.army.mil/alog/issues/MarApril12/New_Spice_Africa.html (accessed November 2, 2013).

Wharves and warehouses have rail spurs that connect to the line accessing the port from Addis Ababa. This railway was completed in 1915 and is vital to Djibouti's economy (Talley 2003, 35-7). The Addis Ababa Railroad is the only line that serves Djibouti and central and western Ethiopia. The rail that they do have is strategically located close to the Port of Djibouti. Because this is the only significant rail service for both countries, it is prone to problems. Overcrowding, poor maintenance, and sporadic criminal activity characterize rail travel in addition to occasional landmines disrupting rail service (Talley 2003, 35-7). Ulmer (2009) reports that the major cost associated with the railroad industry is the operations, maintenance, and ownership of the tracks themselves.

Overall, Africa has an estimated 45,260 miles of track, 30 percent of which lies in the country of South Africa alone (Ulmer 2009, 18). AFRICOM must determine if it will be a wise investment to improve the HOA rail infrastructure in order to perform a broad range of humanitarian relief efforts throughout the region. Initial cost of track is a large capital investment, and annual maintenance is a substantial drain on earnings. In the United States, capital expenditures in 2001 amounted to $5.4 billion. Despite these high costs, plans for fifteen new lines in East Africa were released in April 2008 connecting Ethiopia, Sudan, Kenya, Uganda, Tanzania, Burundi, Rwanda, and the Democratic Republic of the Congo (Ulmer 2009, 19-20). Freight rates by rail in Africa are on average about twice as high as those in Asia and one-and-a-half times those in Latin America (Jerome 1999, 30).

Most railway authorities in Africa have not pursued sustainable tariff policies. Being public or semi-public enterprises, they were not always profit oriented or cost

conscious in their operation, limiting their ability to maintain the existing networks, let alone upgrade or expand them. When profits were made, they were required to pass them to the users in the form of reduced tariff rates. The tariff basis was the same throughout the network, varying only with distance (Jerome 1999, 30).

Nonprofit Contributions to Humanitarian Relief

AFRICOM faces the challenge of being fiscally constrained by DoD in regard to improving the infrastructure just discussed to enhance humanitarian operations. After reviewing the literature on this subtopic, many of the sources discussed ways to leverage various agencies, including host nation organizations, to reduce the financial burden that is normally associated with DoD to perform humanitarian operations. The immediate providers of assistance are the affected communities and countries themselves, and often neighboring states. Furthermore, it is common for disaster victims to recover quickly from the initial shock and participate spontaneously in search-and-rescue efforts and other relief initiatives such as the storage and distribution of emergency supplies. The affected population is never entirely helpless. Neighbors, local governments, indigenous humanitarian organizations, and regional allies will often serve as the first line of relief after a disaster (Rodman 2004, 40-1).

Logistics is the most important element in any disaster relief effort—it is the difference between a successful and a failed operation. It is also the most expensive part of any disaster relief, accounting for about 80 percent of the total costs (Cozzolino 2012, 7). U.S. assistance finds its way to Africa through a variety of channels. Bilateral or country-to-country aid, also known as direct assistance, is given through NGOs or private and voluntary organizations, contractors, and African government ministries and

agencies. Multilateral aid, or indirect assistance, is given first to international financial institutions and United Nations agencies, which in turn channel it to Africa through their own programs (Copson 2005, 1). Governments—host governments, neighboring country governments, and other country governments within the international community—are the activators of humanitarian logistics streams after a disaster strikes because they have the power to authorize operations and mobilize resources. Without the host government authorization, no other player—with the exception of national aid agencies and the military—can operate in the disaster theater (Cozzolino 2012, 11).

Aid agencies are actors through which governments are able to alleviate the suffering caused by disasters (see figure 2). The largest agencies are global actors, but there are also many small regional and country-specific aid agencies. Donors provide the bulk of funding for major relief activities. Generally, donations take the form of financial contributions (in-cash donations) to support humanitarian operations or the provision of goods and/or services for free (in-kind donations) while performing logistics operations. Because each player within its own specific role can provide in-kind donations, the humanitarian relationship model uses the term "donor" to refer to those who exclusively provide financial means to fund aid operations. Thus, in addition to the country-specific funding contributed by governments in recent years, foundations, individual donors, and companies have become important sources of funds for aid agencies (Cozzolino 2012, 13).

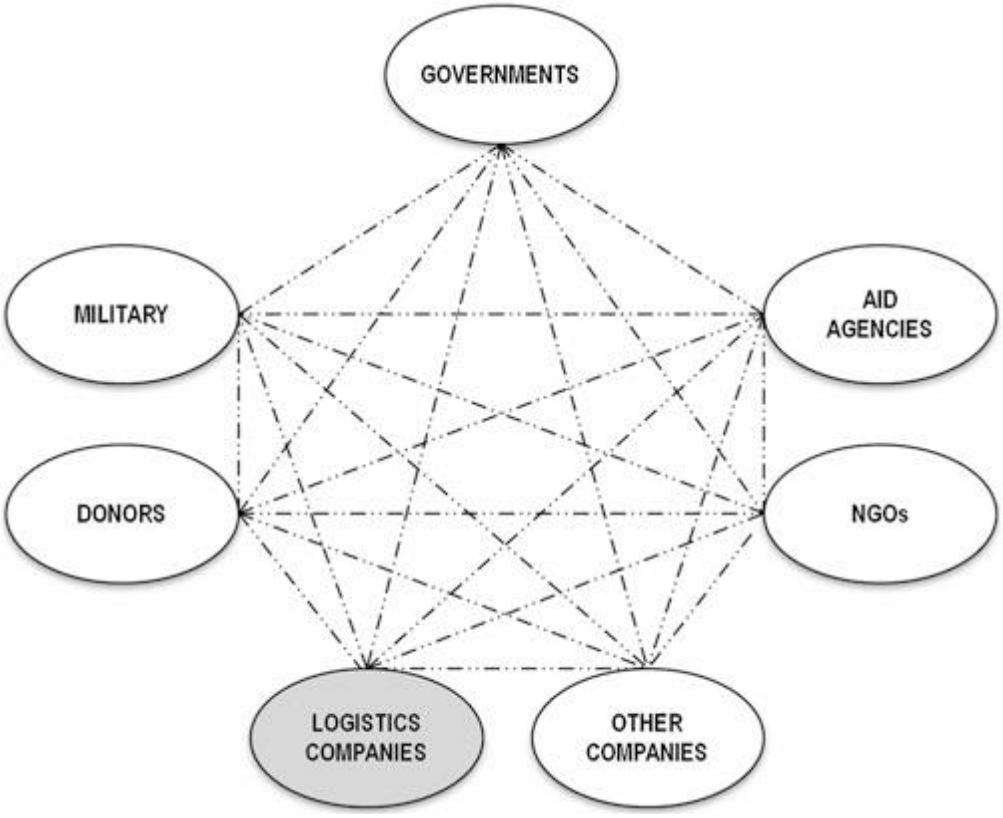

Figure 2. The Humanitarian Relationship Model

Source: Alessandra Cozzolino, *Humanitarian Logistics: Cross-Sector Cooperation in Disaster Relief Management* (New York: Springer, 2012).

NGOs include several and disparate actors, ranging from influential and international players to small and micro-organizations that develop within local communities but are also able to operate at the international level. In humanitarian logistics, companies can play one or more of the following roles: donors, collectors, or providers. As a donor, a company can support humanitarian logistics by giving financial contributions, in cash, to fund aid operations. As a collector, a company can gather financial means from its customers, employees, and suppliers to fund aid operations. As a provider, a company can offer its goods and services for free, either as in-kind donations

or as a consequence of selling action (Cozzolino 2012, 14). It is important for AFRICOM to leverage the capabilities within the interagency realm to broadly conduct overall humanitarian relief operations.

Conducting Direct and Indirect Humanitarian Assistance

The United States provides direct humanitarian assistance in several ways. The processes by which it conducts indirect multilateral aid can be leveraged by AFRICOM to reduce the financial constraint in the region. The United States provides aid to Africa indirectly through international financial institutions and United Nations agencies. World Bank lending through its "soft loan" affiliate, the International Development Association, is the largest single source of development capital in Africa. International Development Association loans, which are considered a form of aid because they are virtually interest free and carry extended repayment periods, have focused on strengthening public sector management, transportation, agriculture, and various social problems. The African Development Fund is another major channel for indirect U.S. aid to Africa. The fund, an affiliate of the Africa-based African Development Bank, makes loans on highly concessional terms to the poorest African countries (Copson 2005, 8).

Partnering with African Organizations for Humanitarian Relief Operations

The African Union (AU) formally established an African Standby Force (ASF) to rapidly respond to conflicts and humanitarian emergencies (Krulick 2011, 1). Other organizations within Africa that already exist to improve the African continent are the Economic Community of West African States, African Oil Policy Initiative Group, the International Committee of the Red Cross, and the United Nations. When the United

States was selecting a headquarters location in Africa, it was careful not to impinge on the sovereignty nor render impotent the works of these indigenous and international institutions (Buchanan 2008, 10). Because of this, Djibouti and its unique location within the HOA became the unanimous choice as the first and only U.S. military base in Africa.

Although the AU is utilized to handle most of the stability and humanitarian operations within Africa, it still requires support from other countries and various international agencies. For instance, operational logistics is a critical capability that is missing from the AU and is required to conduct ongoing peacekeeping, security, and humanitarian operations. The heart of humanitarian and peacekeeping operations lies in the ability to conduct operational logistics to achieve operational sustainment of assigned forces (Krulick 2011, 2). The majority of AU members have limited airlift capabilities and thus still rely on external assistance to deploy and sustain their AU forces (Krulick 2011, 2). AFRICOM is leveraging this effort to increase their emphasis on partnerships with regional organizations such as the ASF.

The U.S. side of any AFRICOM–ASF partnership faces funding challenges. Current debates over DoD budgets will significantly affect programs to fund ASF airlift capacity. ASF brigades are designed to meet peace operation requirements and contain approximately 4,300 personnel, 175 vehicles, and 4 helicopters (Krulick 2011, 4–5). Even with these assets in the ASF brigades, Krulick argues that the ASF was still unable to achieve its operational reach when required. It is apparent that the AU's and ASF's ability to conduct peacekeeping and humanitarian operations is hampered by the lack of operational logistics, specifically airlift. The United States is capable of collaborating with the ASF to fill this gap, but the justification of U.S. efforts to improve ASF

operational reach must support U.S. interests in Africa. In addition, there must be compelling reasons for the AU, ASF regional brigades, and individual African states to support an airlift partnership between AFRICOM and the ASF (Krulick 2011, 9).

Adaptive Logistics Network

AFRICOM's Deployment and Distribution Operations Center is in charge of logistical movement throughout the continent. Without permanent transportation assets, the operations center has to think outside the box to move cargo throughout the continent. The theoretical tool they have created to aid their logistics problem is the ALN. The theory behind an ALN is to use transportation resources already available within Africa (via local freight hauling businesses) and contract them when necessary for the movement of cargo. This network could shrink or expand as necessary and cover the entire continent without needing additional military transportation resources (Ulmer 2009, 2). This is not a command and control system, but a collaboration and information sharing capability available to the Joint Logistics Enterprise partners, nations, NGOs, and commercial entities (see figure 3).

Connecting Africa one region at a time through logistical policies will enable AFRICOM to slowly strengthen their partnerships within the region while allowing the African people to help themselves. The identification of all local resources, such as active ports, railways, airways, and roads, combined with a thorough analysis, will not only allow AFRICOM to determine active resources within the existing infrastructure, but also to determine the best route suited to transport logistical supplies.

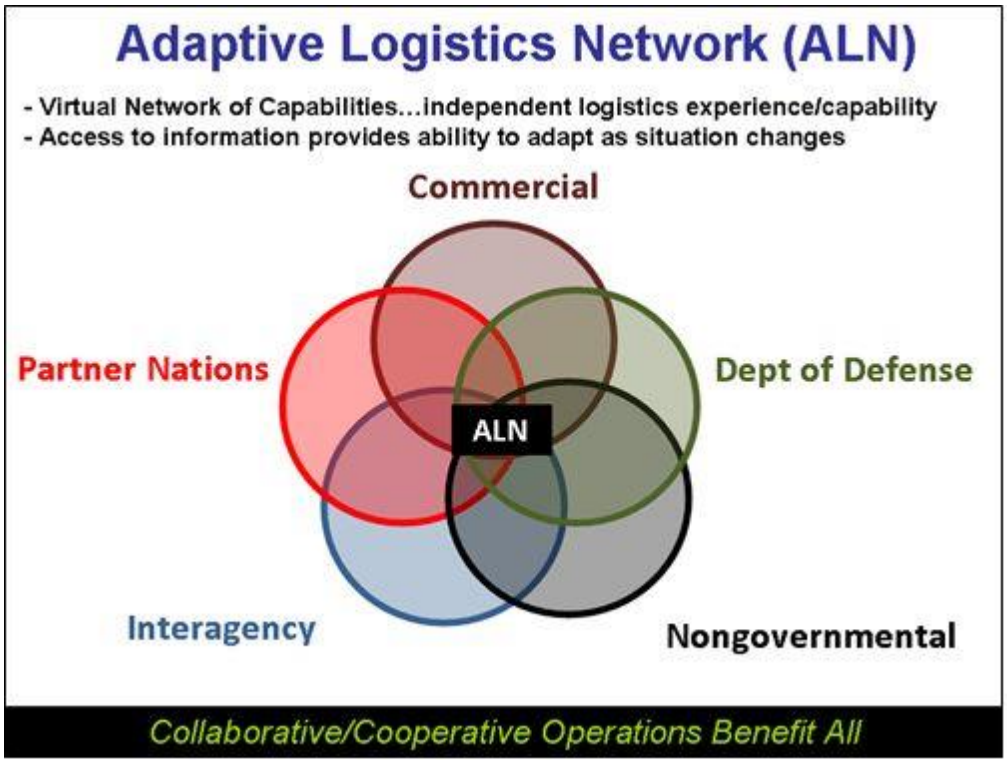

Figure 3. Adaptive Logistics Network

Source: Department of Defense, *Joint Concept for Logistics* (2010), http://www.dtic.mil/futurejointwarfare/concepts/jcl.pdf (accessed November 9, 2013).

In addition to supporting the mission, this process should cultivate and strengthen the partnership between the United States and the African people by utilizing local vendors and companies to support AFRICOM's vision statement for providing partnership, peace, and stability to the region (Loney 2012, 23-4). From combat to humanitarian assistance to disaster relief, the task of heavy lifting, delivery, and distribution of goods and services to those in need will continue to be borne not just by the U.S. military, but also by a talented, professional, and assertive collective of multinational partners committed to mission success (Loney 2012, 25).

In regard to the ALN concept, Ulmer (2009, 30) discusses the brief that Rear Admiral Mike Lyden, 2008 Commander of Naval Supply Systems Command, gave to the National Defense Industrial Association's Annual National Logistics Conference in March 2008. Lyden talked about Big "J" logistic integration—whereas the term "joint" in a military concept means more than one branch of service—to include the U.S. Department of State, North Atlantic Treaty Organization, United Nations, European Union, AU, private industry, and NGOs (Ulmer 2009, 30). NGOs have a wealth of logistical experience and established working relations with all types of supply chains worldwide, both large and small, to rapidly move goods to austere locations on shoestring budgets while utilizing a smaller footprint than typical military solutions (Ulmer 2009, 30).

Security

Africa has experienced large migration flows in recent decades, often in response to economic problems, civil unrest, or natural disasters. Africa generates 49 percent of the world's internally displaced persons. This shift in nomadic culture has left large acres of the continent uninhabited with little to no governance, creating a primary breeding ground for criminal and violent extremist organizations to take hold (Kubica 2010, 4). The poor, remote villages of Somalia provide only one example of the many areas within Africa where violent extremist organizations, such as Al-Qaeda, are able to gain a foothold and hide from American and coalition forces fighting against global extremism (Kubica 2010, 4).

The AU has taken assertive steps toward a regional security capability, and, in 2003, it established the Peace and Security Council to address conflict prevention and

mitigation. The council's operational arm is the ASF concept, and the ASF design is five standby brigades, one in each of Africa's five regions: central, southern, eastern, northern, and western (Krulick 2011, 4). ASF brigades are developed to meet peace operation requirements and contain approximately 4,300 personnel, 175 vehicles, and 4 helicopters. A planned core ASF task is to deploy forces rapidly to interdict or deter conflict in response to an AU mandate. The ASF rapid response concept is to deploy an initial response force of 1,000 personnel within 14 days and an additional 1,500 within 30 days (Krulick 2011, 5). Unfortunately, this type of robust deployment has its drawbacks. The ASF has been unable to achieve its "operational reach." The process of extending ASF's operational reach requires transportation capacity, and because the austere nature of Africa limits transportation options, airlift must be a primary player in AU's plans to respond effectively to security or humanitarian crises (Krulick 2011, 5). Currently, the United Nations and other supporting nations are fulfilling this shortfall.

As previously mentioned, the U.S. military covers the continent with one Marine Corps base, Camp Lemonnier, in Djibouti. However, the United States does have other bare-bones facilities in Africa called Cooperative Security Locations (CSLs). According to the Dictionary of Military and Associated Terms, CSLs are "located outside the United States with little or no permanent U.S. presence, maintained with periodic Service, contractor, or host nation support" (Department of Defense 2001, 125). They provide contingency access, logistical support, and rotational use by operating forces and are a focal point for security cooperation activities (Ulmer 2009, 26). To be effective, they must maintain a constant state of readiness despite the possibility of years with little or no permanent presence (Ulmer 2009, 28).

Conclusion

In summary, the strategic importance and U.S. interests in Africa led to the establishment of AFRICOM. AFRICOM faces a nearly insurmountable level of logistical challenges based on the current infrastructure and lack of military assets. However, those challenges could be minimized if AFRICOM leveraged the African partnerships already established (AU), formed additional interagency organization collaborations, and utilized the ALN to its full effectiveness. These actions would ensure a long-lasting partnership in times of humanitarian relief operations without a large fiscal burden to the United States. The implementation of more CSLs, this would help to secure various locations around Africa by providing a key logistical hub for a range of resources during humanitarian operations. The next chapter will discuss the methodology used to develop a detailed analysis based on the primary research question.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The type of approach utilized for this study is the qualitative approach. Qualitative research is a multifaceted approach that investigates culture, society, and behavior thorough an analysis and synthesis of people's words and actions (Hogan, Dolan, and Donnelly 2009, 3). This type of research is also concerned with collecting and analyzing information in many forms, chiefly non-numeric (Hogan, Dolan, and Donnelly 2009, 6). The purpose of this narrative study is to examine the HOA's existing capabilities in regard to current and previous conflicts, environmental factors, and political unrest that may hinder humanitarian operations.

Background

The HOA's humanitarian situation is a major area of concern. Refugees and internally displaced persons driven by drought, endemic famine, and political strife burden aid agencies and regional governments (Talley 2003, 46). In 2011, the HOA was labeled as the worst location in sixty years in which to conduct humanitarian relief operations. By September 2011, more than thirteen million people were in need of humanitarian assistance (AllAfrica 2013). These types of man-made and natural disasters must be analyzed in order to assess their full impact on the possibility of leveraging various infrastructures within the HOA to conduct humanitarian relief operations. The primary question that this thesis attempts to answer is: Is it possible to leverage the

HOA's infrastructure and resources for humanitarian relief operations? The secondary questions that will be addressed are:

1. In what other ways can the United States supplement the HOA during humanitarian relief operations?
2. Are countries in the HOA capable of self-resupply? If so, how will this reduce the financial burden for the U.S. government?
3. How will famine affect the ability to leverage the HOA's infrastructure when conducting humanitarian relief operations?

Identify the Problem

When organizations conduct humanitarian relief operations in the HOA, they seldom look at some of the root causes for the current relief operation. Previous research continued to study the modes and methods of leveraging HOA's infrastructure to sustain humanitarian relief operations (airports, seaports, roads, railways). These key areas of infrastructure are important, but there must be a study of how to anticipate humanitarian relief operations. This must be based on the known and unknown environmental impacts that exist in the region. By identifying and analyzing these types of impacts, humanitarian relief organizations can be better prepared to effectively leverage the various infrastructure platforms without disruption. Out of all of the literature that was reviewed in chapter 2, none of the authors directly addressed the impact of food insecurity, famine, flooding, and drought in the HOA and how they might affect the region's overall leveragement to conduct humanitarian aid. Buchanan (2008) mentions the ethnic civil war and genocide occurring in the Darfur region that began in February 2003. The war started because nomadic herders traveled farther south than normal into Sudan due to

drought and disturbed the farmers in the area (Buchanan 2008, 3-4). The problem still exists for planners of humanitarian operations because of the uncertainty of the infrastructure status.

Analysis Approach

The analysis approach will focus on four key areas—famine, drought, food insecurity, and flooding—and examine the root causes of each to determine how they bring about the involvement of humanitarian relief organizations to assist in rectifying the situation. For this analysis, the three-dimensional space approach will be utilized. This type of narrative approach involves analyzing data from three elements: interaction (personal and social), continuity (past, present, and future), and situation (physical places or the storyteller's places) (Creswell 2013, 189). The analysis will also examine the Integrated Food Security Phase Classification (IPC) system to determine how it characterizes the level of food security as it relates to famine (Berhane 2011).

The IPC is a set of analytical tools and processes used to analyze and classify the severity of a food security situation according to scientific international standards. It aims to provide decision makers with a rigorous analysis of food insecurity in both emergency and development contexts, as well as key objectives for response, to better coordinate interventions (IPC 2013, 1). The IPC is also a forum involving the government, the United Nations, NGOs, and civil society that conducts joint food security analysis to reach technical consensus on the nature and severity of food insecurity in affected countries. The IPC standardized scale categorizes the severity of acute food security into five phases: minimal, stressed, crisis, emergency, and famine (IPC 2013, 2). Each IPC phase is linked to priority strategic response objectives and indicates the severity of the

situation, the exact area that is affected, which part of the population is food insecure, and the basic causes of the crisis.

The results are consolidated into the IPC Acute Food Insecurity Overview (see figure 4), which includes the key findings of the analysis, an IPC map that communicates in five phases the severity of the food insecurity situation, and the evidence in support of the classification (IPC 2013, 2). The IPC is a multi-agency initiative globally led by nine partners: Action Against Hunger, CARE International, the Permanent Interstate Committee for Drought Control in the Sahel, the Famine Early Warning Systems Network, the Food and Agriculture Organization of the United Nations, the Joint Research Centre of the European Commission, Oxfam, Save the Children, and the United Nations World Food Programme (IPC 2013, 4).

Action Against Hunger (2013) is a global humanitarian organization whose mission is to save lives via the prevention, detection, and treatment of malnutrition, in particular during and following disasters and conflicts. It assists the IPC's goal of savings lives and minimizing hunger after a disaster. According to the CARE International Web site, it provides assistance to war and natural disaster victims, but its primary focus is on empowering women for they are key to lifting entire families out of poverty. As this mission pertains to the IPC's initial goals, it is important that women continue to be empowered to assist their families and communities in overcoming poverty (CARE Web site). The Permanent Interstate Committee for Drought Control in the Sahel is the strategic framework for food security in western Africa; its goals and initiatives are the same as the IPC's, particularly as they relate to existing information systems (IPCinfo 2014).

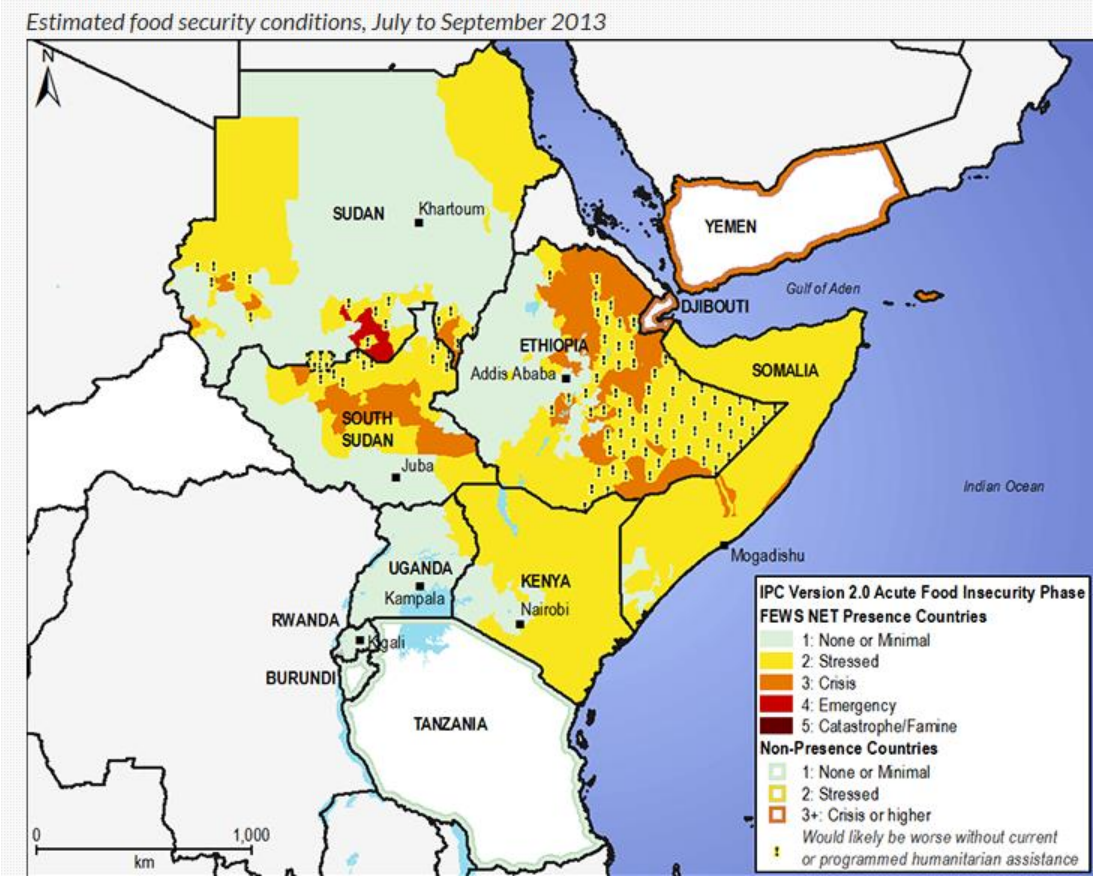

Figure 4. IPC Food Security Conditions as of July–September 2013

Source: Famine Early Warning Systems Network, "Integrated phase classification," http://www .fews.net/notre-travail/notre-travail/integrated-phase-classification (accessed May 16, 2014).

As noted on the Famine Early Warning Systems Network Web site, food security maps are incorporated into the IPC scale. The Food and Agriculture Organization of the United Nations (2014) also has similar goals to the IPC by striving to achieve food security for all. The Joint Research Centre of the European Commission promotes security and safety for a specific area, thus supporting one of the many initiatives that the IPC seeks to achieve as its overall end state by utilizing advanced technology and scientific methods (Joint Research Centre 2010).

Oxfam (2014) works with communities in the aftermath of a disaster to help with rebuilding efforts, which correlates with IPC's mission to provide recovery and stability assistance. Save the Children (2014) focuses on children and their well-being after a disaster to ensure that their needs are put first. This is connected to the IPC five-level scale by understanding and incorporating children's needs while conducting humanitarian relief operations. The World Food Programme (2014) is the food aid arm of the United Nations system, and its efforts directly support the overall goals of the IPC. Food aid is one of the many instruments that can help to promote food security, which is defined as access for all people at all times to the food needed for an active and healthy life (World Food Programme 2014).

Famine is often the result of politics gone wrong. Institutions unable to respond to increasing stresses, ongoing conflicts that prevent the movement of people, or the lack of programs to give people a safety net in hard times can play large roles in turning natural disasters into a famine (McGray, Elsayed, and Dixit 2011). Chapter 4 will analyze the Somalian conflicts that led to the development of the IPC in the 2000s. It will also examine how the conflicts in Ethiopia may have influenced the development of a system to safeguard food within its country. The analysis will take a detailed look at each country's political government at various time periods to see if they have done enough to control the situation without the involvement of the United Nations or other nations.

Conclusion

Based on the methodology that was discussed in this chapter, it is important that humanitarian organizations fully understand the root causes for the aid that they would be providing. Without sufficient understanding of the root causes of famine, drought,

flooding, and food insecurity, and how they impact distribution modes, the humanitarian operation could be underplanned and underresourced. With the analysis of these key areas, future researchers, policymakers, and planners will have a better understanding of how these areas could hinder the leveragement of HOA infrastructure for humanitarian relief operations. By conducting the analysis in a three-dimensional space approach, it will provide the opportunity to describe the various stories and then classify the data into codes and themes for better understanding (Creswell 2013, 190). The process of coding involves aggregating the text or visual data into small categories of information, seeking evidence for the code from different databases being used in a study, and then assigning a label to the code (Creswell 2013, 184). Themes in qualitative research (also called categories) are broad units of information that consist of several codes aggregated to form a common idea (Creswell 2013, 186).

Interpretation in qualitative research involves abstracting out beyond the codes and themes to the larger meaning of the data. This process begins with the development of the codes, the formation of themes from the codes, and then the organization of themes into larger units of abstraction to make sense of the data. Interpretation basically involves making sense of the data, also known as the "lessons learned" (Creswell 2013, 187). While interpreting the data, the analysis would look at the larger meaning of the stories in order to provide better conclusions and recommendations on how to conduct sufficient humanitarian relief operations in the region and beyond. In addition, by looking at the various elements that make up the IPC classification system, it will help to understand and accurately assess the potential need for humanitarian relief operations.

The intent of this analysis is to determine if there is a direct correlation with infrastructure usage in the HOA and natural disaster events to hinder humanitarian relief operations. It will also determine if there are any early natural disaster detection capabilities that exist in the HOA. If so, will that allow the U.S. government to leverage those systems in order to reduce fiscal responsibility within that region or other regions in Africa?

CHAPTER 4

ANALYSIS

Introduction

The analysis will focus on answering the primary research question: Is it possible to leverage the HOA's infrastructure and resources for humanitarian relief operations? In this chapter, the four key areas that could possibly hinder the leveraging of infrastructure in the HOA to conduct humanitarian relief operations will be analyzed. Those key areas are famine, flooding, drought, and food insecurity. Upon conclusion of that analysis, there will be an analysis of the previous conflicts in Somalia and Ethiopia to determine if there is a correlation between those key areas and the need for international intervention in order to provide better humanitarian relief operations.

Gaps in Previous Analysis

As previously stated, this thesis will attempt to incorporate the significant man-made and natural disaster factors that could disrupt ongoing humanitarian operations within the HOA. The majority of the literature articulated in chapter 2 did not elaborate on how those factors hindered the overall operation or if they played a critical role in limiting the leveragement of key infrastructure within the region. This analysis is pivotally needed in order to properly assess the risks associated with this type of host nation assistance approach.

Famine

According to the United Nations, famine is defined as the "triple failure" of food production, people's ability to access food, and political response by governments and

international donors. Crop failure and poverty leave people vulnerable to starvation, but famine occurs only with political failure (Smith 2012). "Famine/humanitarian catastrophe" is stage five of the IPC Acute Food Insecurity Reference Table for Household Groups and is famine at its extreme. It requires that acute malnutrition rates are above 30 percent, there is less than 2,100 kilocalories of food and four liters of water available per person per day, more than two people per 10,000 die each day, and all livestock are dead (AllAfrica 2013). The HOA's famine is not due only to the weather. The four dominant causes are drought, high food costs, poverty, and violent political instability. The ongoing drought in the region has caused crop failure, which has led to record food inflation. This combined with poverty leaves people vulnerable to starvation. However, underlying it all has been the violent internal conflict over the years, particularly in Somalia, which has led to famine (AllAfrica 2013).

Conflict disrupts people's traditional ways of dealing with food scarcity, such as gathering wild foods; it stops people from cultivating their land, and destroys market centers and transport links. It also brings about long-term economic decline as the infrastructure is destroyed and foreign investment collapses. It typically turns ordinary people into refugees, as seen in Kenya's Dadaab refugee camp where more than one million people now reside in the middle of the desert (AllAfrica 2013). Famine was declared for two regions of southern Somalia in July 2011—Southern Bakool and Lower Shabelle—and the United Nations reported that food security outcomes in Somalia were the worst in the world and the worst in Somalia since the 1991–1992 famine, with an estimated 3.7 million people facing a humanitarian crisis (Ferris and Petz 2012, 106).

The 2011 Somali famine illustrated the deadly combination of drought, conflict, and an uncertain international response. In many respects, Somalia is the classic example of a failed state, characterized by clan-based violence; a militant Islamist group, al-Shabaab, which has targeted foreigners; piracy on its southern coast; an outflow of refugees; and virtually nonexistent political structures (Ferris and Petz 2012, 104). It was not just the drought that was causing the famine, but the severe problems in accessing communities in need due to the activities of al-Shabaab. Al-Shabaab is an offshoot of the Islamic Courts Union, a group of Sharia Courts who united to form a rival administration to the Transitional Federal Government of Somalia and controlled large parts of Southern Somalia until it was defeated by the Ethiopian intervention in 2006 (Ferris and Petz 2012, 106). Known for its vicious anti-Western ideology and suspected of having links to Al-Qaeda, the group has targeted western aid workers and terrorized the population in areas it controls (Ferris and Petz 2012 106-7).

When famine was declared in July 2011, many aid agencies geared up and aid eventually poured into the country. Al-Shabaab left Mogadishu in July, allowing relief to be delivered to that city. But the uncertainties and the danger posed by al-Shabaab continued. In September, the United Nations reported that famine had spread, with an estimated 750,000 people now at risk of starvation. In late November, al-Shabaab ordered six more aid agencies to leave the country. Despite these setbacks, on 3 February 2012 the United Nations officially declared that the famine in Somalia had ended. Deyr rainfall between October and December, coupled with humanitarian aid, meant that the risk of starvation had declined (Ferris and Petz 2012, 107, 111).

Somalia has long been wracked by instability, and the famine of 2011 has an eerie resemblance to the last famine in the early 1990s. Like the situation in 2011, the 1991–1992 famine was the product of the intersection of drought and conflict. In 1991, Somali president Major General Mohamed Siad Barre was overthrown, ushering in what was to become a decades-long civil war. Africa's worst drought hit the country in 1992, driving up food prices and causing extreme malnutrition. People began to leave their communities in search of food. At the same time, gangs of armed men terrorized Mogadishu (Ferris and Petz 2012, 103). By early 1992, it was estimated that between one-quarter and one-third of all Somali children under the age of five had died. By late 1992, 1.5 million people faced imminent starvation and almost five million were totally dependent on food aid. The international community responded by increasing humanitarian aid and deploying several military missions to Somalia: Operation Provide Relief, UNOSOM I, UNOSOM II, and Operation Restore Hope. Nevertheless, in October 1993, the forces of one of Somalia's strongmen attacked the peacekeepers and they withdrew. An estimated 300,000 Somalis died in the drought and violence of 1992 (Ferris and Petz 2012, 103-4).

Flooding

Unusually heavy rains in 2007 during the months of October and November turned large parts of the HOA into flood disaster areas, particularly affecting Kenya, Somalia, and Ethiopia. By December 2007, more than three million people were affected across the three countries,. The floods led to a loss of life, massive displacement, and considerable damage to livelihoods. In addition to the immediate life-threatening events of floods, outbreaks of cholera were detected and the incidence of diseases such as

malaria were feared to increase dramatically as a result of flooding and subsequent stagnant water (UNICEF 2007). In parts of the region, many water supplies were submerged in flood waters while latrines either collapsed or flooded. Ensuring access to and the use of safe water and sanitation to prevent outbreaks of water-borne and water-related diseases, and the prevention and treatment of malaria and diarrhea, remained the priority. While emergency response was launched, it was hampered by insufficient information, damaged or destroyed infrastructure, lack of fuel, and continuing heavy rains (UNICEF 2007).

The flood disaster in the HOA was overshadowed by the possibility of conflict between Somalia and Ethiopia that could bring about widespread population displacement both within Somalia and across borders into already flood-affected and vulnerable areas of North Eastern Kenya and the Somali region of Ethiopia. UNICEF, as part of the United Nations Country Teams in the three affected countries, pre-positioned critical supplies in strategic locations in order to launch an effective and immediate response in the event of worsening flooding or a conflict-induced regionalized humanitarian crisis (UNICEF 2007).

Drought

Rainfall fluctuations have been noted for as long as records have been kept, and pastoralist communities have lived and thrived through peaks and troughs of precipitation for centuries. Therefore, to understand why intense dry seasons turn into crises today, it is necessary to look beyond the shortage of rainfall. It is wrong to blame it all on climate change (International Federation of Red Cross and Red Crescent Societies 2011, 8). Drought in itself is not a disaster, merely a natural hazard. Catastrophe only occurs when

it overwhelms human settlement that is unprepared for and vulnerable to it (International Federation of Red Cross and Red Crescent Societies 2011, 6).

While there are other natural hazards in the HOA—notably flooding—drought is by far the most widespread and long term. Its very nature—a slow-onset hazard—requires a particular type of response. According to the United Nations International Strategy for Disaster Reduction (2012, 4), a broad definition of drought is a deficiency of precipitation over an extended period of time, usually a season or more, which results in a water shortage for some activity, group, or environmental sectors.

Drought Cycle Management is a process that acknowledges drought as a cyclical event and defines the actions to be taken in different stages of a drought. The concept of Drought Cycle Management was developed in Kenya by Jeremy Swift in the mid-1980s under the European Union, funded by the Turkana Rehabilitation Project (United Nations International Strategy for Disaster Reduction 2012, 5). The Drought Cycle Management model looks at drought as a cycle of four phases: normal, alert/alarm, emergency, and recovery (see figure 5). It guides what should be done at each of these phases, thus ensuring that actions are appropriate and effective and that they ultimately reduce the risks and consequences of any drought (Smith 2012, 5).

In addition to the Drought Management Cycle, there is a drought contingency plan or drought contingency planning. Drought contingency planning is a systematic process of integrating drought risk management from well-designed, coordinated, and funded drought contingency plans. The emphasis in drought contingency planning is on formalizing and enforcing the process from clarity in the roles of different individuals, communities, and institutions in managing drought risks (Lesukat 2012, 5). The drought

contingency plan is a product of drought contingency planning. It is a summary of impacts of a specific drought translated into stages of and triggering criteria for drought risk reduction from legal or non-legal operational implications (Lesukat 2012, 5). Although drought contingency plans and drought contingency planning are used interchangeably, they are not identical (Lesukat 2012, 4).

While the famine declaration pertains to Somalia only, large parts of Ethiopia, Kenya, and Djibouti are also suffering from severe food insecurity as a result of drought and high food prices, and are seeing significant inflows of refugees fleeing the drought in Somalia (United Nations, Office for the Coordination of Humanitarian Affairs 2011, 1). The trigger for this massive movement of people from and within Somalia (tens of thousands of people have been displaced to Mogadishu in search of help) is directly attributable to the drought, but also to the ongoing conflict in southern Somalia that has restricted access for humanitarian agencies. Across the region, the situation is severe. Drought conditions in Kenya's northern and northeastern districts, where most refugees are arriving, worsened further after the inadequate performance of the March through June 2011 long rains (United Nations, Office for the Coordination of Humanitarian Affairs 2011, 1). In Djibouti, an Emergency Food Security Assessment (EFSA) conducted in May 2011 confirmed the findings of a February 2010 rapid assessment that, out of a total of 240,000 people living in rural areas, 120,000 people have been severely affected by the drought due to a substantial loss of livestock, destruction of livelihoods, and degradation of fields and pastures. Out of this group, 50 percent, or 60,000 people, are highly food insecure (United Nations, Office for the Coordination of Humanitarian Affairs 2011, 11).

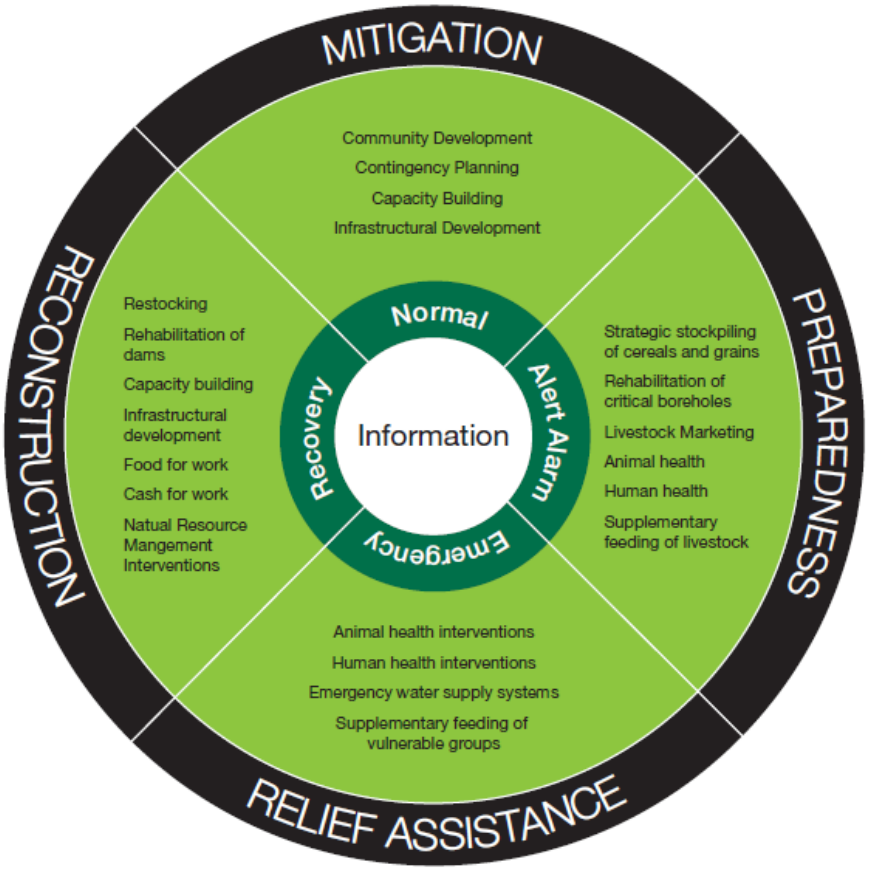

Figure 5. The Drought Cycle Management Process

Source: Oxfam GB, *Disaster Risk Reduction in Drought Cycle Management: A Learning Companion* (United Kingdom: Oxfam GB, 2010), 6.

More than twenty-five years ago, USAID invested in the Famine Early Warning System (FEWSNET) precisely because of the recurring droughts in the HOA region. This system, along with the United Nations Food and Agriculture Organization's Food Security and Nutrition Analysis Unit (FSNAU), maintains a strong presence in the HOA and enables the humanitarian community to indentify conditions based on an extensive analysis of historical and current rainfall, cropping patterns, livestock health, market

prices, and malnutrition rates. USAID is the largest supporter of these vital early warning systems, and the entire international humanitarian and donor community relies on their information to provide appropriate assistance to those who need it most and to target assistance that may be needed in the future (Lindborg 2011, 1).

Food Insecurity

Within the cross-cutting field of food security analysis there are increasingly strong calls for improved analysis. These include the greater comparability of results from one place to another, increased rigor, greater transparency of evidence to support findings, increased relevance to strategic decision making, and stronger linkages between information and action. Improving analysis along these lines would enable food security and humanitarian interventions to be more needs based, strategic, and timely (IPC Global Partners 2008, 1). Since 2007, countries in the eastern and central African region are leading the implementation of the IPC worldwide, and today ten countries lead acute analysis two to four times a year: Burandi, Central African Republic, Democratic Republic of the Congo, Djibouti, Kenya, Somalia, South Sudan, Sudan, Tanzania, and Uganda (IPC 2013, 1). The IPC was used in July 2011 as a scientific reference to declare famine for some parts of Somalia in a common voice (IPC 2013, 1).

The IPC is a set of protocols for consolidating and summarizing situation analysis, a distinct yet often overlooked (or assumed) stage of the food security analysis-response continuum. Situation analysis is a foundation stage where the fundamental aspects (severity, causes, magnitude, etc.) of a situation are identified. These aspects have received an optimal broad-based consensus from key stakeholders including governments, United Nations agencies and NGOs, donors, the media, and target

communities (IPC Global Partners 2008, 1). The analytical logic of the IPC is that varying phases of food security and humanitarian situations are classified based on outcomes on lives and livelihoods. Outcomes are a function of both immediate hazard events and underlying causes, as well as the specific vulnerabilities of livelihood systems (including both livelihood assets and livelihood strategies). The outcomes are referenced against internationally accepted standards, and their convergence substantiates a phase classification for any given area. Each phase is associated with a unique strategic response framework, while the outcome configuration for any given situation guides the creation of a tailored response unique to that situation. While the phase classification describes the current or imminent situation for a given area, levels of Risk for Worsening Phase are a predictive tool to communicate the likelihood and severity of a potential further deterioration of the situation beyond the phase classification itself (IPC Global Partners 2008, 1).

The IPC Reference Table guides analysis for both the phase classification and Risk Worsening Phase (see Table 1). The phase classification is divided into five phases: Generally Food Secure (1A and 1B), Moderately/Borderline Food Insecure, Acute Food and Livelihood Crisis, Humanitarian Emergency, and Famine/Humanitarian Catastrophe. These phases are general enough to accommodate a variety of causes, livelihood systems, and political or economic contexts, yet their distinction captures essential differences in implications for action, including strategic design, urgency, and ethical imperative (IPC Global Partners 2008, 1).

Table 1. IPC Reference Table

Phase Classification		Key Reference Outcomes *Current or imminent outcomes on lives and livelihoods. Based on convergence of direct and indirect evidence rather than absolute thresholds. Not all indicators must be present for classification..*	Strategic Response Framework Objectives: *(1) mitigate immediate outcomes, (2) support livelihoods, and (3) address underlying causes*
1A	Generally Food Secure	***Crude Mortality Rate*** < 0.5 / 10,000 / day ***Acute Malnutrition*** <3 % (w/h <-2 z-scores) ***Stunting*** <20% (h/age <-2 z-scores) ***Food Access / Availability*** usually adequate (> 2,100 kcal ppp day), stable ***Dietary Diversity*** consistent quality and quantity of diversity ***Water Access / Avail.*** usually adequate (> 15 litres ppp day), stable ***Hazards*** moderate to low probability and vulnerability ***Civil Security*** prevailing and structural peace ***Livelihood Assets*** generally sustainable utilization (of 6 capitals)	Strategic assistance to pockets of food insecure groups Investment in food and economic production systems Enable development of livelihood systems based on principles of sustainability, justice, and equity Prevent emergence of structural hindrances to food security Advocacy
1B	Generally Food Secur		
2	Moderately / Borderline Food Insecure	***Crude Mortality Rate*** <0.5 / 10,000 / day; U5MR<1 / 10,000 / day ***Acute Malnutrition*** >3% but <10 % (w/h <-2 z-score), usual range, stable ***Stunting*** >20% (h/age <-2 z-scores) ***Food Access / Availability*** borderline adequate (2,100 kcal ppp day); unstable ***Dietary Diversity*** chronic dietary diversity deficit ***Water Access / Avail.*** borderline adequate (15 litres ppp day); unstable ***Hazards*** recurrent, with high livelihood vulnerability ***Civil Security*** Unstable; disruptive tension ***Coping*** "insurance strategies" ***Livelihood Assets*** stressed and unsustainable utilization (of 6 capitals) ***Structural*** Pronounced underlying hindrances to food security	Design & implement strategies to increase stability, resistance and resilience of livelihood systems, thus reducing risk Provision of "safety nets" to high risk groups Interventions for optimal and sustainable use of livelihood assets Create contingency plan Redress structural hindrances to food security Close monitoring of relevant outcome and process indicators Advocacy
3	Acute Food and Livelihood Crisis	***Crude Mortality Rate*** 0.5-1 / 10,000 / day, U5MR 1-2 / 10,000 / dy ***Acute Malnutrition*** 10-15 % (w/h <-2 z-score), > than usual, increasing ***Disease*** epidemic; increasing ***Food Access / Availability*** lack of entitlement; 2,100 kcal ppp day via asset stripping ***Dietary Diversity*** acute dietary diversity deficit ***Water Access / Avail.*** 7.5-15 litres ppp day, accessed via asset stripping ***Destitution / Displacement*** emerging; diffuse ***Civil Security*** limited spread, low intensity conflict ***Coping*** "crisis strategies"; CSI > than reference; increasing ***Livelihood Assets*** accelerated and critical depletion or loss of access	Support livelihoods and protect vulnerable groups Strategic and complimentary interventions to immediately food access / availability AND support livelihoods Selected provision of complimentary sectoral support (e.g., water, shelter, sanitation, health, etc.) Strategic interventions at community to national levels to create, stabilize, rehabilitate, or protect priority livelihood assets Create or implement contingency plan Close monitoring of relevant outcome and process indicators Use "crisis as opportunity" to redress underlying structural causes Advocacy
4	Humanitarian Emergency	***Crude Mortality Rate*** 1-2 / 10,000 / day, >2x reference rate, increasing; U5MR > 2 / 10,000 / day ***Acute Malnutrition*** >15 % (w/h <-2 z-score), > than usual, increasing ***Disease*** Pandemic ***Food Access / Availability*** severe entitlement gap; unable to meet 2,100 kcal ppp day ***Dietary Diversity*** Regularly 3 or fewer main food groups consumed ***Water Access / Avail.*** < 7.5 litres ppp day (human usage only) ***Destitution / Displacement*** concentrated; increasing ***Civil Security*** widespread, high intensity conflict ***Coping*** "distress strategies"; CSI significantly > than reference ***Livelihood Assets*** near complete & irreversible depletion or loss of access	Urgent protection of vulnerable groups Urgently food access through complimentary interventions Selected provision of complimentary sectoral support (e.g., water, shelter, sanitation, health, etc.) Protection against complete livelihood asset loss and / or advocacy for access Close monitoring of relevant outcome and process indicators Use "crisis as opportunity" to redress underlying structural causes Advocacy
5	Famine / Humanitarian Catastrophe	***Crude Mortality Rate*** > 2 / 10,000 / day (example: 6,000 / 1,000,000 / 30 days) ***Acute Malnutrition*** > 30 % (w/h <-2 z-score) ***Disease*** Pandemic ***Food Access / Availability*** extreme entitlement gap; much below 2,100 kcal ppp day ***Water Access / Avail.*** < 4 litres ppp day (human usage only) ***Destitution / Displacement*** large scale, concentrated ***Civil Security*** widespread, high intensity conflict ***Livelihood Assets*** effectively complete loss; collapse	Critically urgent protection of human lives and vulnerable groups Comprehensive assistance with basic needs (e.g. food, water, shelter, sanitation, health, etc.) Immediate policy / legal revisions where necessary Negotiations with vested political-economic interests Use "crisis as opportunity" to redress underlying structural causes Advocacy

Source: IPC Global Partners, *Integrated Food Security Phase Classification Manual.* Version 1.1 (Rome: Food and Agriculture Organization of the United Nations, 2008), 4.

Each phase is linked to a comprehensive set of Key Reference Outcomes on human welfare and livelihoods that guide the classification. These include crude mortality rate, acute malnutrition, disease, food access and availability, dietary diversity, water access and availability, destitution and displacement, civil security, coping, and livelihood assets. The breadth of outcomes enables triangulation and ensures the adaptability of the IPC to a wide variety of situations. Referencing outcomes to international standards ensures comparability and consistency of the phase classification in different countries and contexts (IPC Global Partners 2008, 1). Inclusion of the complete spectrum—from generally food secure to famine—emphasizes that food security interventions are required at all phases (not just when an emergency occurs), although the strategic focus will differ. The terminology of "phases" underscores the dynamic and evolving (either positively or negatively) nature of food security. The IPC is equally applicable for situations that are deteriorating or improving, enabling comparative analysis of situations over time. However, changes from one phase to another are not necessarily sequential—that is, it is possible to skip from Generally Food Secure to Humanitarian Emergency (IPC Global Partners 2008, 19).

IPC in-country activities are led by multi-partner IPC Technical Working Groups, chaired by the government, and technically supported by regional technical coordinators. The IPC initiative is guided by a multi-agency IPC Regional Steering Committee embedded in the regional Food Security and Nutrition Working Group (FSNWG) and chaired by the Inter-Governmental Authority on Development. The regional FSNWG (see figure 6) uses the IPC to monitor the evolution of the food security situation and

outlook and identify priority areas in the region every month, consolidating country products into a regional map (IPC 2013, 1).

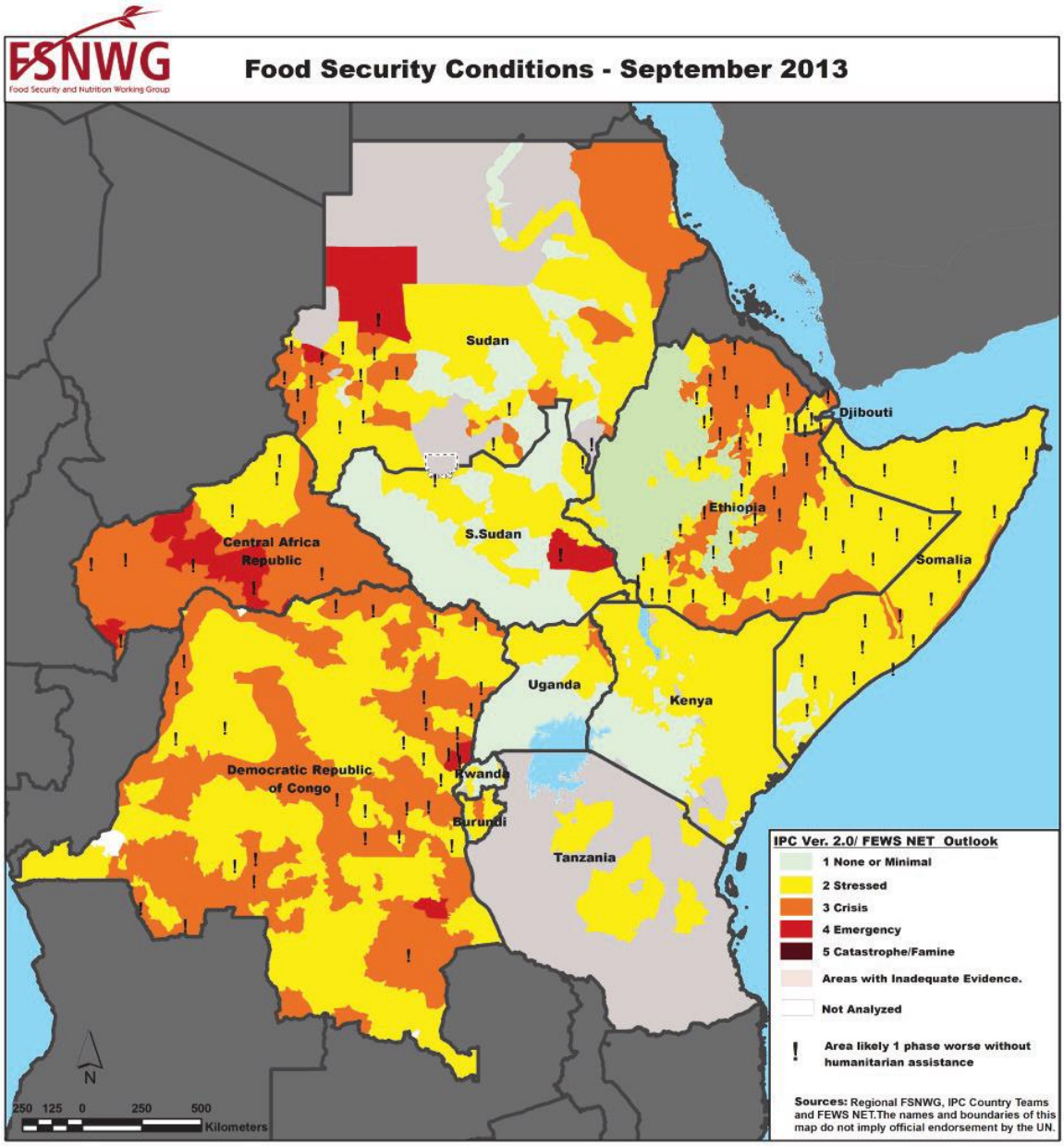

Figure 6. IPC Regional Map: East and Central Africa

Source: IPC, IPC in East and Central Africa, *IPC Brief* 7 (September 2013), 1. http://reliefweb.int/sites/reliefweb.int/files/resources/7.%20ECA%20Brief.pdf (accessed February 22, 2014).

IPC Version 2.0 distinguishes between two conditions of food insecurity: acute and chronic. For the IPC, acute food insecurity is a snapshot of the current or projected severity of the situation, regardless of the causes, context, or duration. Chronic food insecurity is the prevalence of persistent food insecurity—that is, levels of food insecurity that continue even in the absence of hazards or shocks or high frequency of years with acute food insecurity (IPC Global Partners 2012, 17). From a decision support perspective, with acute food insecurity it is appropriate to have short-term strategic objectives (ideally, these are also linked to medium and longer-term objectives). Chronic food insecurity, however, requires medium and long-term strategic objectives to address underlying causes. Acute and chronic food insecurity are not mutually exclusive. An area or household can be in one of the conditions or both simultaneously; acute food insecurity is often "on top of" chronic food insecurity. It is necessary to examine the nature of, and linkages between, chronic and acute conditions in order to develop the most effective and appropriate strategies for action (IPC Global Partners 2012, 17).

Civil insecurity and armed conflicts continue to be additional, serious threats to food security in most areas of southern and central Somalia and obstruct the delivery of humanitarian aid. If access for humanitarian aid and workers to the worst-affected areas of Somalia does not improve, continued flows of refugees to the Kenyan and Ethiopian borders can be expected. Securing long-term food and nutrition security in the HOA requires focusing on a range of issues affecting the region, including conflict, preservation of humanitarian space, nutrition, disaster risk reduction, health and education services, and climate change adaptation. Building resilience in the agricultural

sector will be essential to avoid recurrent food security crises in this region (United Nations, Office for the Coordination of Humanitarian Affairs 2011).

Conflicts in Somalia

While the population of the HOA has doubled since the 1970s, food production and levels of community resilience have not kept up with that growth. Over the past twenty years, the lack of a functioning government in Somalia has been both the cause and effect of protracted conflict. As a result, Somali social infrastructure has been decimated, increasing vulnerability to drought and contributing to the current famine. Although some of the worst affected areas are those that are the least accessible, the crisis is also severe in areas such as Mogadishu and the Gedo region, which can partly be accessed by government and international agencies (United Nations, Office for the Coordination of Humanitarian Affairs 2011, 3).

The HOA has for decades been virtually synonymous with crisis. Civil wars, interstate wars, proxy wars, Islamic fundamentalism, revolution, famine, refugee flows, brutal dictatorships, state collapse, warlordism, and unremitting poverty have been the chief images associated with the region (Menkhaus and Prendergast 1999, 213).

Until 1998, news from southern Somalia had been generally positive since the withdrawal of forces in 1995. Although the country remained without a central government, local communities had been building modest systems of governance, and regional commerce was flowing profitably. But 1998 saw setbacks throughout southern Somalia. Fragile local administrations had collapsed or had been significantly weakened by a resurgence in interclan conflict, lawlessness, and warlordism. Fighting over the port city of Kismaayo has drawn in clans and factions from the entire country, and renewed

armed conflict in the Baidoa area has exacerbated famine conditions and population displacement in that region (Menkhaus and Prendergast 1999, 215). Estimates of the number of people at immediate risk of famine in southern Somalia range from 300,000 to one million; emergency relief operations must run the same gauntlet of predatory militias seeking to divert food aid as during the 1992 famine. Relief operations are also hampered by a weak international presence on the ground because of unacceptable security risks. Southern Somalia will likely remain an open sore in the HOA for some time to come, its problems spilling over into neighboring states (Menkhaus and Prendergast 1999, 215).

With the rise of proxy warfare, internal conflicts in the HOA have been destabilizing and threaten to prolong conflicts and humanitarian crises. Proxy warfare has become most blatant and disruptive in Somalia. There, regional actors—Ethiopia, Egypt, Libya, and most recently Eritrea—are pursuing hegemonic aspirations by providing military training and material to client Somali factions (Menkhaus and Prendergast 1999, 216). Egyptian–Ethiopian rivalry for preeminence in the HOA has a long history and is intimately linked to the "hydropolitics" of the Nile River. But the stakes have been raised, with both sides portraying their dispute over Somalia as a power struggle between the Arab world and Africa; Ethiopia has sought to mobilize support in the Organization of African Unity and Egypt in the Arab League (Menkhaus and Prendergast 1999, 216).

Ethiopia has the most at stake in Somalia. For several years it has backed Somali factions and clan militias that control territory along the lawless border between the two countries in an attempt to form a buffer zone against perceived threats from the radical Islamist group al-Ittihad and Oromo Liberation Front (OLF) rebels. In 1997, Ethiopia

went so far as to launch an armed attack inside southern Somalia to drive out al-Ittihad forces from their bases in the Gedo region (Menkhaus and Prendergast 1999, 216).

The United States, like the rest of the international community, has multiple reasons for wanting to bring an end to the armed conflicts in the region: they are destabilizing to neighboring states, they are the root causes of deadly and expensive humanitarian crises, and they are breeding grounds for a wide range of security threats, from unmonitored diseases to terrorism (Menkhaus and Prendergast 1999, 217). Getting the region beyond the immediate crises of warfare, state collapse, recurring famine, and refugee flows is imperative, because just beneath the surface of these crises lie daunting challenges of underdevelopment and disease that have gone largely unaddressed over the past decade. The Greater HOA is now the poorest region in the world, with some of the lowest human development indicators anywhere. All the regional states and organizations have put forward agendas that prioritize addressing the problems of underdevelopment, food insecurity, disease, and institutional decay (Menkhaus and Prendergast 1999, 217).

The crisis needs to be understood beyond the visible manifestation of food shortages and massive displacement triggered by drought. Directly underlying the crisis is the vulnerability of livelihoods systems—largely pastoralism and farming—that fail to provide enough income to ensure access to food, even when time are good. These fragile livelihood systems break down completely in periods of protracted stress (United Nations Development Programme 2011, 3). All over Africa, different ethnic groups live a pastoralist or nomadic lifestyle, constantly moving and grazing their animals on traditional lands. In most cases, these groups do not have formal title deeds to such lands, which they use on a rotational basis, nor do they have any security of tenure. When

pastoralists can have access to lands, they are able to survive by grazing their animals on different lands according to the seasons. However, when pastoralists cannot have access to their traditional lands, their livelihoods are threatened. Such threats are caused by conflict, such as in Somalia and bordering areas where conflict has meant that pastoralists can no longer use lands they once did (Canadian Catholic Organization for Development and Peace 2011).

In July 2011, 40,000 Somali refugees arrived in Kenya's Dadaab refugee camp. Dadaab now holds an estimated 424,000 Somalis, and the situation is fast deteriorating as hundreds arrive daily. In Somalia itself, further security concerns persist, especially around Mogadishu, both for the protection of vulnerable groups within internally displaced people populations and for those attempting to deliver life-saving humanitarian aid (Canadian Catholic Organization for Development and Peace 2011).

Conflicts in Ethiopia

Ethiopia's Haile Selassie was supported for decades by the United States for geopolitical and Cold War reasons. The Soviet Union had supported Somalia in its claim that parts of Ethiopia and Kenya were part of Somalia. There was a reversal of support by the two superpowers in the 1970s as well (Shah 2000). For the United States' unrestricted use of a military base, Selassie was given "aid" (military aid). Unfortunately, this was used against Eritrean secessionists and Ethiopian guerillas in brutal wars. Italy, the former colonial ruler of Eritrea, left in 1952. Ethiopia annexed it in 1962 (Shah 2000).

More than thirty years of war and conflict continued as Eritrea attempted to gain independence, joined by Ethiopian guerilla forces that were also fighting against the harsh dictatorship. In an April 1993 internationally monitored referendum, 98.5 percent

of the registered voters voted, and 99.8 percent of these voted for independence, although the borders were not defined clearly (Shah 2000).

For a while, the two nations seemed to get on fairly well. However, relations further deteriorated into war a couple of years after Eritrea introduced its own currency in 1997 (Shah 2000). Hostilities flared between these two former friends in May 1998 and, after nine months of unsuccessful mediation efforts and an expensive military buildup by both sides, fighting broke out again in February 1999. The major reason for the recent conflict is that Ethiopia no longer has a border along the Red Sea and therefore relies on transport through other countries such as Eritrea in order to ship and trade goods along that line (Shah 2000). In reality, the war has ostensibly been over a long-running territorial dispute involving a 2,000-square-kilometer border area, but the roots of the conflict lie in fundamental differences of opinion over the nature of the relationship between Ethiopia and Eritrea (Menkhaus and Prendergast 1999, 214).

The two countries' perceptions of the conflicts are, predictably, sharply at odds. The Ethiopian viewpoint is that the Eritrean government has acted arrogantly in policies of joint concern, militarily invaded Ethiopian territory, and exposed itself as the uncompromising belligerent in the dispute by repeatedly rejecting Organization of African Unity proposals for military withdrawal from the disputed territory (Menkhaus and Prendergast 1999, 214). After losing ground in the February 1999 fighting, Eritrea belatedly agreed to accept an Organization of African Unity devised peace framework. The proposal called for Eritrea's withdrawal from Badme, the deployment of an international observer mission, and the phased demilitarization of other disputed border areas. A conflict then arose over the interpretation of the Organization of African Unity

framework, with Ethiopia insisting that Eritrea must withdraw from other areas it has occupied before a cease-fire could be put into place (Menkhaus and Prendergast 1999, 214). The May 1998 through June 2000 war alone resulted in 100,000 deaths and millions of dollars diverted from much-needed development into military activities and weapons procurements (Shah 2000).

While the conflict raged on, in both Ethiopia and Eritrea severe drought threatened a famine as bad as the one in 1984. There have been many criticisms of the Ethiopian government's continual spending on war while thousands die of starvation. Less reported, however, is that Eritreans have also faced similar problems. In the HOA, some regions have gone without adequate rainfall for two or three years, affecting more than eight million people. At the end of May 2000, Ethiopia claimed to have ended the war with Eritrea: they claimed a victory, while Eritrea claimed a tactical withdrawal (Shah 2000).

Conclusion

In this chapter, the four key areas that can possibly hinder the leveraging of infrastructure in the HOA were analyzed. As the analysis took place, it became clear that conflict and instability within the various countries attributed to famine more than the natural disasters of flooding and drought. Those natural disasters only added to the devastation and famine. When the United Nations declared Somalia a famine country in July 2011, the analysis showed that it was a combination of drought, conflict, and uncertain international response. The militant Islamist group al-Shabaab disrupted the humanitarian aid support in Somalia. The previous conflicts in Somalia and Ethiopia were catalysts to the food insecurity and famine that took place over a thirty- to forty-

year time period. The conflicts caused thousands of displaced persons to relocate to safer ground to avoid being killed. This caused an extreme level of starvation, and when floods and droughts came about, it immediately caused more deaths and famine at a faster rate. The conflict, which led to the associated famine in Somalia, resulted in the development of the IPC and its five-phase classification system to determine how close a country is to famine or humanitarian catastrophe.

Within the HOA, various agencies have developed several early warning systems to aid humanitarian operations in the region. USAID invested in the Famine Early Warning Systems Network because of the recurring droughts in the HOA. In addition, to help anticipate droughts, the Drought Cycle Management system was developed and implemented in various regions to help humanitarian organizations respond in a timely manner. To monitor threats to food security in the region, the Food Security and Nutrition Working Group was developed. This assisted the IPC in monitoring the evolution of the food security situation on a monthly basis.

Chapter 5 will present recommendations that may help to reduce the international involvement in humanitarian operations in the HOA. The recommendations will be based on the already established systems and infrastructure in place in the region. The chapter will also answer the primary and secondary research questions in this thesis in order to put the situation into greater perspective.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The purpose of this thesis is to determine if the U.S. government could possibly leverage the HOA's infrastructure for humanitarian relief operations. This possibility was thoroughly discussed in chapter 2 by reviewing the four primary infrastructure platforms for humanitarian relief operations: airports, seaports, roads, and railways. After conducting a detailed analysis of the data that was collected on those platforms, the research materials suggested that operations can take place with major or minor distractions to operations. Within each infrastructure's capabilities, the current state would need to be modified in order to conduct continuous operations.

Another question that this thesis attempted to answer was if the U.S. government could supplement the HOA while conducting humanitarian operations. The research material concluded that the United States can supplement the HOA by utilizing USAID and the many organizations that fall beneath it. In addition, intergovernmental organizations from around the world are trained and prepared to assist the HOA and other areas of Africa if humanitarian relief is needed. This type of international response prevents the United States from absorbing the majority of the fiscal and logistical burden that is normally associated with these types of relief efforts.

This thesis also attempted to answer the question of the HOA's capability to conduct self-resupply of humanitarian relief aid. This would involve but not be limited to providing potable water, bulk amounts of food, and immediate shelter for displaced people. At this time, the HOA is not capable of performing this feat alone. It will have to

rely on the international community in order to sustain continuous operations. The AU is continuously trying to build up its capabilities so that external relief assistance will only be utilized when various capabilities have been exhausted at the HOA level.

Lastly, this thesis examined the impact that famine would have on the ability to leverage the infrastructure in the HOA for humanitarian relief operations. While researching this question, it was discovered that famine is initiated by several factors, not just the natural disaster(s) that occurred to bring about the need for humanitarian operations. This includes but is not limited to food insecurity, constant cross-border conflicts with neighboring countries, migration of displaced people, and destroyed crops. These types of factors played a significant role in humanitarian relief operations within various locations in Africa. The constant and unpredictable acts of violence have hindered the overall distribution of support items. Most organizations have threatened to discontinue support to various areas due to the acts of violence and the decrease of a secure area out of which to operate. The only way to resolve the conflict is for the leaders of those countries to discuss their differences politically without other countries influencing the outcomes. In chapter 4 of the analysis, the research material showed that efforts have been made to help rectify the situation without escalating it, but small areas of violence still exist.

Infrastructure has a major role to play, especially water supply and roads, as does the functioning of governance systems. Governance, rule of law, and security are entwined. Putting in place the full range of systems to manage the risks of climate variability and the challenges of weak national and local governance are essential if many

in the region are to achieve food security and sustainable livelihoods (United Nations Development Programme 2011, 3).

Areas for Further Study

This thesis was unable to cover several associated factors to help gain a better understanding of leveraging the HOA infrastructure during humanitarian relief operations. Based on one of the research limitations noted in chapter 1, a study could be conducted to compare how much the United States is saving monetarily by leveraging HOA infrastructure and by allowing intergovernmental organizations to take the lead in relief operations. This may possibly allow the United States to take on a supporting role that would reduce the overall financial burden as if it were in a leading role. Another area of study could examine how effective the ELIST is when it comes to suggesting the proper infrastructure to leverage in the HOA. AFRICOM uses this logistical planning tool, but due to the nature of this thesis, they were not contacted to provide historical accounts of how beneficial it is to their mission planning. Most of the data from the ELIST is classified and was not able to be utilized for this thesis. That type of information would help to understand how and when infrastructure leveragement could take place.

Recommendations

In order to tackle these root causes in the HOA, the international community must support a comprehensive approach to issues such as improved natural resource management, livelihood diversification, and improved basic productive infrastructures, including access to markets and better opportunities to improve food processing. At the

same time, they must also look at enhanced provision of climate information to communities, climate-risk sensitive development policies, enhanced institutional and governance capacities, and security (United Nations Development Programme 2011, 3).

One of the programs that is currently implemented and sponsored by the Office of U.S. Foreign Disaster Assistance and utilized within Ethiopia is called the Revitalizing Agricultural/Pastoral Incomes and New Markets (RAIN) program for pastorals and agricultural communities in southeastern Ethiopia (USAID 2012, 49). With more than $20.7 million in Office of U.S. Foreign Disaster Assistance support since April 2009, the RAIN program has reached more than 1.3 million livestock herders and farmers in Ethiopia's Oromiya and Somali regions with agriculture, food security, and economic recovery. Designed in partnership with the Government of Ethiopia (GoE) and local communities, and implemented by NGO partners Mercy Corps and Save the Children UK, RAIN provides families with the skills and opportunities to better cope with drought and other cyclical environmental shocks. This has led to quicker disaster recovery and increased household confidence to invest in local markets and infrastructure (USAID 2012, 49–50). Between April 2009 and September 2012, the program temporary employed nearly 30,500 people, including approximately 35,000 women, who earned more than 16.3 million Ethiopian birr, or approximately 1.1 million U.S. dollars, to construct and rehabilitate vital community infrastructure (USAID 2012, 50).

Another recommendation for the United States to leverage when conducting humanitarian relief operations is the Emergency Market Mapping and Analysis (EMMA) toolkit, which helps organizations identify which parts of a market system continue to function following a crisis, as well as how markets may be used to help respond to

people's needs (USAID 2012, 54). The toolkit can help identify whether basic supplies are available in the local market and the best ways to get them to the people who are most affected, or determine how to help the market return to normal functioning. With more than $800,000 in funding since FY 2008, the Office of U.S. Foreign Disaster Assistance has supported the toolkit development and trainings for practioners around the globe, helping build organizational capacity to assess markets and develop effective response options. Donors and NGOs alike are increasingly using market-based interventions as a way to more effectively assist crisis-affected populations (USAID 2012, 53).

The recommendations listed here are just a few ways out of many that may help to improve humanitarian relief operations not only in the HOA, but in other areas within Africa as well. The key to success in humanitarian relief operations is to have safe and secure areas of operations. At times in Africa, those areas are not secure and these conditions impact relief operations significantly. Today, many African countries are trying to take better control of the situations that exist in the region. When those stable conditions are better handled, local and international organizations can focus on the primary purposes of humanitarian relief operations: saving lives and minimizing the threat of hunger.

ILLUSTRATIONS

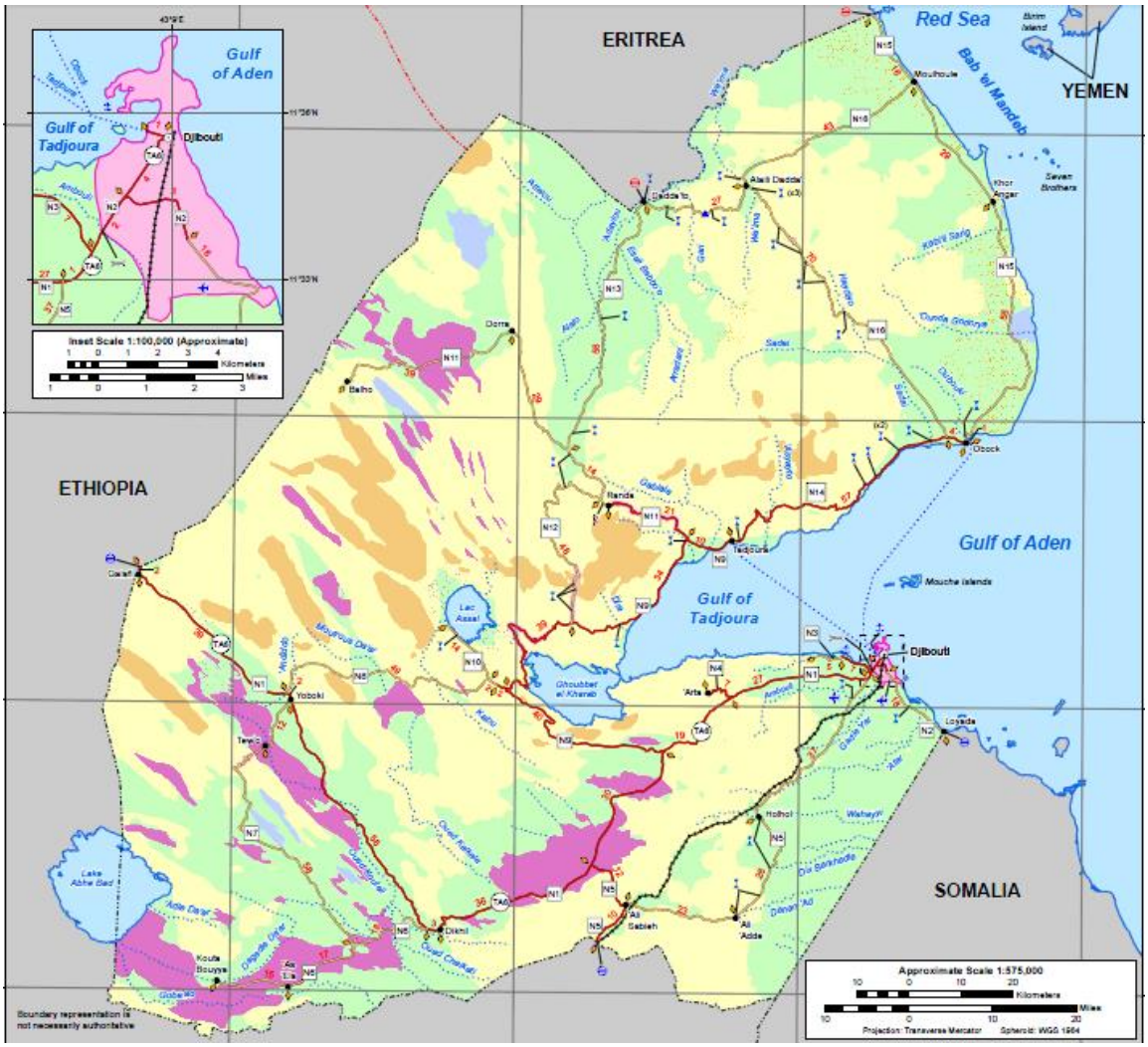

Figure 7. Djibouti Terrain Map

Source: Army Geospatial Center, Djibouti terrain map, U.S. Army Corps of Engineers (September 2013).

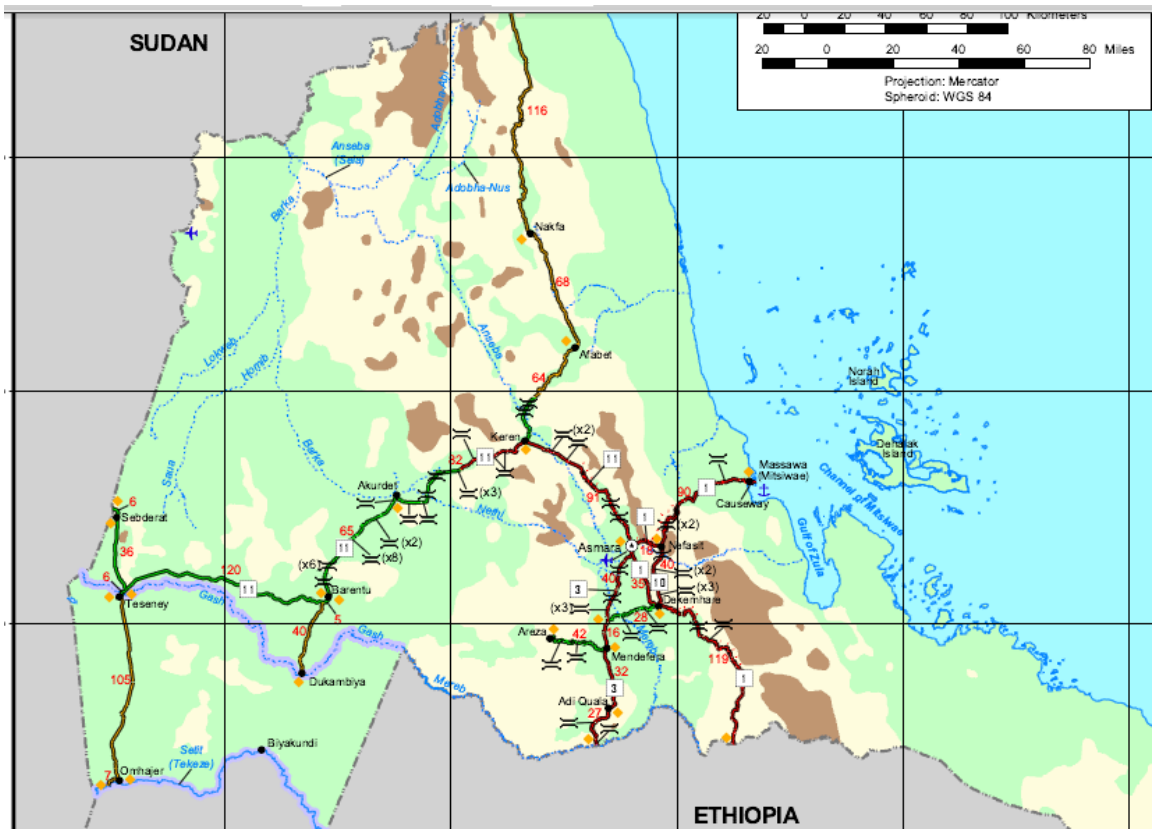

Figure 8. Eritrea Terrain Map

Source: Army Geospatial Center, Eritrea terrain map, U.S. Army Corps of Engineers (September 2013).

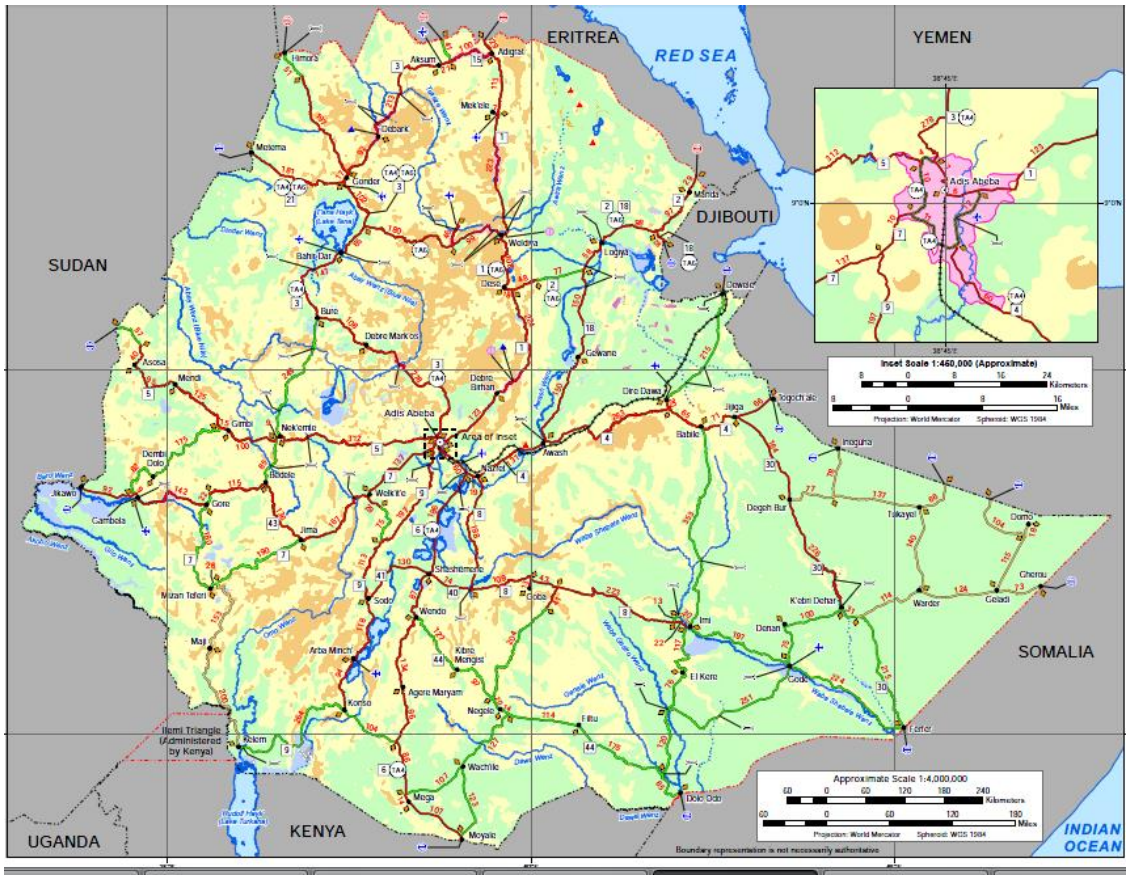

Figure 9. Ethiopia Terrain Map

Source: Army Geospatial Center, Ethiopia terrain map, U.S. Army Corps of Engineers (September 2013).

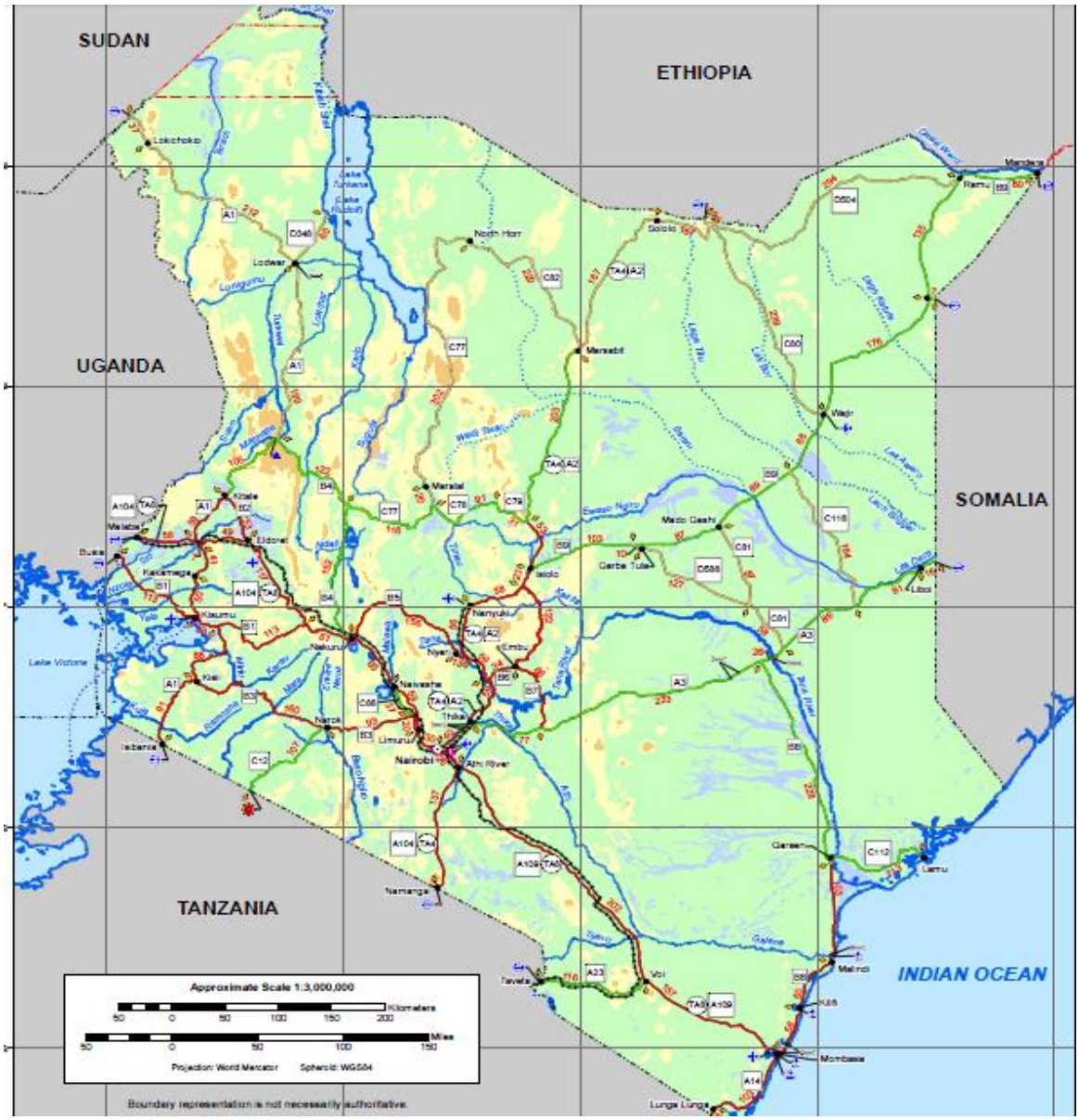

Figure 10. Kenya Terrain Map

Source: Army Geospatial Center, Kenya terrain map, U.S. Army Corps of Engineers (September 2013).

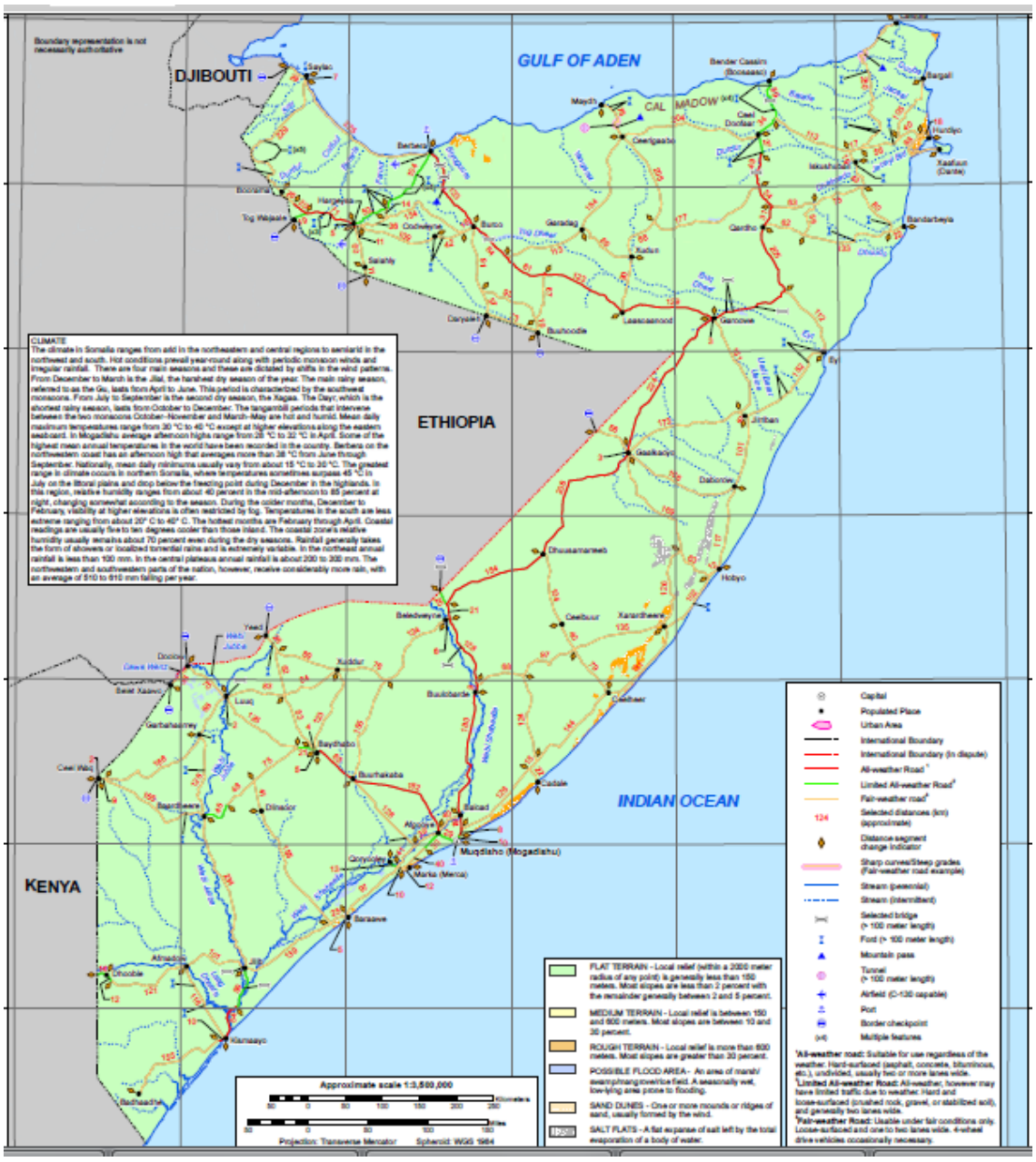

Figure 11. Somalia Terrain Map

Source: Army Geospatial Center, Somalia terrain map, U.S. Army Corps of Engineers (September 2013).

REFERENCE LIST

Action Against Hunger. 2013. About. http://www.actionagainsthunger.org/about (accessed May 16, 2014).

AllAfrica. 2013. Africa: Horn of Africa–What is famine and what causes it? http://allafrica.com/stories/201308071133.html (accessed February 7, 2014).

Army Geospatial Center. 2013a. Djibouti terrain map. U.S. Army Corps of Engineers. September.

———. 2013b. Eritrea terrain map. U.S. Army Corps of Engineers. September.

———. 2013c. Ethiopia terrain map. U.S. Army Corps of Engineers. September.

———. 2013d. Kenya terrain map. U.S. Army Corps of Engineers. September.

———. 2013e. Somalia terrain map. U.S. Army Corps of Engineers. September.

Berhane, Daniel. 2011. Famine defined: Integrated food security phase classification (IPC) system. Horn Affairs. August 2. http://hornaffairs.com/en/famine-defined-integrated-food-security-phase-classification (accessed November 19, 2013).

Buchanan, Robert. 2008. USAFRICOM: Operational considerations are paramount in selecting a headquarters location. Master's thesis, Naval War College.

Canadian Catholic Organization for Development and Peace. 2011. Food crisis in the Horn of Africa: The underlying causes of the crisis. Development and Peace August. http://www.devp.org (accessed March 2, 2014).

CARE International. About us. http://www.care-international.org/about-us.aspx (accessed May 16, 2014).

Central Intelligence Agency. 2014a. The World Factbook: Djibouti. https://www.cia.gov/library/publications/the-world-factbook/geos/dj.html (accessed January 25, 2014).

———. 2014b. The World Factbook: Eritrea. https://www.cia.gov/library/publications/the-world-factbook/geos/er.html (accessed January 25, 2014).

———. 2014c. The World Factbook: Ethiopia. https://www.cia.gov/library/publications/the-world-factbook/geos/et.html (accessed January 25, 2014).

———. 2014d. The World Factbook: Kenya. https://www.cia.gov/library/publications/the-world-factbook/geos/ke.html (accessed January 25, 2014).

———. 2014e. The World Factbook: Somalia. https://www.cia.gov/library/publications/the-world-factbook/geos/so.html (accessed January 25, 2014).

Copson, Raymond W. 2005. *Africa: U.S. foreign assistance issues*. Congressional Research Service Issue Brief for Congress IB95052. Washington, DC: Library of Congress.

Corrick, David L. 2012. The new Spice Route for Africa. *Army Sustainment* 44, no. 2 (March–April). http://www.almc.army.mil/alog/issues/MarApri12/New_Spice_Africa.html (accessed November 2, 2013).

Cozzolino, Alessandra. 2012. *Humanitarian logistics: Cross-sector cooperation in disaster relief management*. New York: Springer.

Creswell, John W. 2013. *Qualitative inquiry and research design: Choosing among five approaches*. 3rd ed. Thousand Oaks, CA: Sage.

Department of Defense. 2001. Joint publication 1-02: *Dictionary of military and associated terms*. http://www.militarynewsnetwork.com/publications/military terms.pdf (accessed November 9, 2013).

———. 2009. Joint publication 3-29: *Foreign humanitarian assistance*. http://www.dmrti.army.mil/documents/Foreign%20HA(jp3_29).pdf (accessed November 9, 2013).

———. 2010. Joint concept for logistics. http://www.dtic.mil/futurejointwarfare/concepts/jcl.pdf (accessed November 9, 2013).

Famine Early Warning Systems Network. Integrated phase classification. http://www.fews.net/notre-travail/notre-travail/integrated-phase-classification (accessed May 16, 2014)

Ferris, Elizabeth, and Daniel Petz. 2012. Somalia: Drought + Conflict = Famine? Brookings. March. http://www.brookings.edu/research/reports/2012/03/natural-disaster-review-ferris/chapter-3 (accessed March 4, 2014).

Food and Agriculture Organization of the United Nations. 2014. About FAO. http://www.fao.org/about/en/ (accessed May 16, 2014).

Hogan, John, Paddy Dolan, and Paul Donnelly. 2009. *Approaches to qualitative research: Theory and its practical application: A guide for dissertation students*. Cork, Ireland: Oak Tree Press.

International Federation of Red Cross and Red Crescent Societies. 2011. *Drought in the Horn of Africa: Preventing the next disaster*. Geneva: International Federation of Red Cross and Red Crescent Societies.

IPC. 2013. IPC in East and Central Africa. *IPC Brief* 7 (September): 1-4. http://reliefweb.int/sites/reliefweb.int/files/resources/7.%20ECA%20Brief.pdf (accessed February 22, 2014).

IPC Global Partners. 2008. *Integrated food security phase classification technical manual.* Version 1.1. Rome: Food and Agriculture Organization of the United Nations.

———. 2012. *Integrated food security phase classification technical manual version 2.0: Evidence and standards for better food security decisions.* Rome: Food and Agriculture Organization of the United Nations.

IPCinfo. 2014. IPC in West Africa. http://www.ipcinfo.org/ipcinfo-countries/western-africa/en/ (accessed May 16, 2014).

Jerome, Afeikhena. 1999. *Infrastructure in Africa: The record.* Economic Research Papers, No. 46. Tunisia: African Development Bank.

Joint Research Centre. 2010. JRC history. http://ec.europa.eu/dgs/jrc/index.cfm?id=2260 (accessed May 16, 2014).

Krulick, Jeffrey N. 2011. The African Union, U.S. Africa Command, and Airlift: Building operational logistics capacity for the African Standby Force. Master's thesis, Naval War College.

Kubica, Scott. 2010. Army aviation's role in USAFRICOM and United States Army Africa. Master's thesis, U.S. Army War College.

Lesukat, Marko. 2012. *Drought contingency plans and planning in the Greater Horn of Africa*. Nairobi: UNON, Publishing Services Section.

Lindborg, Nancy E. 2011. Drought and famine in the Horn of Africa. http://www.state.gov/documents/organization/169763.pdf (accessed February 7, 2014).

Loney, Muriel. 2012. Africom's adaptive logistics network: Database feeds. Master's thesis, U.S. Army War College.

McGray, Heather, Samah Elsayed, and Aarjan Dixit. 2011. Famine in the Horn of Africa. World Resources Institute. August. http://www.wri.org/blog/famine-horn-africa (accessed February 22, 2014).

Menkhaus, Kenneth L., and John Prendergast. 1999. Conflict and crisis in the Greater Horn of Africa. *Current History* 98, no. 628 (May): 213-17.

Oxfam. 2014. What we do. http://www.oxfam.org.uk/what-we-do (accessed May 16, 2014).

Oxfam GB. 2010. *Disaster risk reduction in drought cycle management: A learning companion*. United Kingdom: Oxfam GB.

Rodman, William K. 2004. Supply chain management in humanitarian relief logistics. Master's thesis, Air Force Institute of Technology.

Save the Children. 2014. About us. http://www.savethechildren.org/site/About_Us.htm (accessed May 16, 2014).

Shah, Anup. 2000. Conflict between Ethiopia and Eritrea. *Global Issues*. December. http://www.globalissues.org/article/89/conflict-between-ethiopia-and-eritrea (accessed March 5, 2014).

Smith, Sophie Mack. 2012. Food crisis in the Horn of Africa: Progress report July 2011–July 2012. Oxfam International. http://www.oxfam.org/sites/www.oxfam.org/files/er-horn-of-africa-2011-2012-progress-report-050712-en.pdf (accessed February 22, 2014).

Talley, Michael J. 2003. The feasibility of Djibouti as an intermediate staging base for U.S. land force operations in the Middle East. Monograph, School of Advanced Military Studies.

Ulmer, Tom R. 2009. Using an adaptive logistics network in Africa: How much and how far? Master's thesis, Air Force Institute of Technology.

UNICEF. 2007. Horn of Africa floods: Ethiopia, Kenya and Somalia. http://www.unicef.org/french/videoaudio/PDFs/Horn_of_Africa_floods_-_immediate_needs_7dec2006.pdf (accessed March 4, 2014).

United Nations Development Programme. 2011. Response to the crisis in the Horn of Africa: Djibouti, Ethiopia, Kenya, Somalia strategy and funding priorities, version 1.0. http://www.undp.org/content/dam/undp/library/crisis%20prevention/UNDP%20Horn%20of%20Africa%20Funding%20Priorities%20Version%201%200.pdf (accessed February 5, 2014).

United Nations International Strategy for Disaster Reduction. 2012. Drought contingency plans and planning in the Greater Horn of Africa. http://www.unisdr.org/files/26436_droughtcontingencylow.pdf (accessed February 25, 2014).

United Nations, Office for the Coordination of Humanitarian Affairs. 2011. Humanitarian requirements for the Horn of Africa drought. http://ochadms.unog.ch/quickplace/cap/main.nsf/h_Index/HRD_2011_Horn_of_Africa/$FILE/HRD_2011_Horn_of_Africa_SCREEN.pdf?openElement (accessed February 18, 2014).

United States Agency for International Development. 2012. Office of U.S. Foreign Assistance: Annual report for fiscal year 2012. http://www.usaid.gov/sites/default/files/documents/1866/10.18.13_AR_Accessibility_Spreads.pdf (accessed February 8, 2014).

———. 2013a. Horn of Africa. http://www .usaid.gov/sites/default/files/documents/ 1866/Disaster-Response-Infographic-10.31.12.pdf (accessed November 9, 2013).

———. 2013b. How does USAID provide international humanitarian assistance? http://www.usaid.gov/documents/1866/ how-does-usaid-provide-international-humanitarian-assistance (accessed November 9, 2013).

———. 2013c. Office of U.S. Foreign Disaster Assistance. http://www.usaid.gov/who-we-are/organization/bureaus/ bureau-democracy-conflict-and-humanitarian-assistance/office-us (accessed November 9, 2013).

United States Africa Command. About the Command. http://www.africom.mil/about-the-command (accessed November 9, 2013).

U.S. Department of State. Crisis in the Horn of Africa. http://www.state.gov/p/af/rt/ hornofafrica/ (accessed November 9, 2013).

World Food Programme. 2014. About. http://www.wfp.org/about/mission-statement (accessed May 16, 2014).